## CONTRACT JOURNAL

THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

No. 4,291 83rd YEAR

THURSDAY, SEPTEMBER 21, 1961

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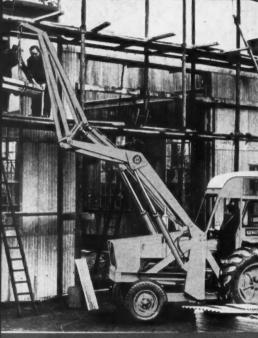
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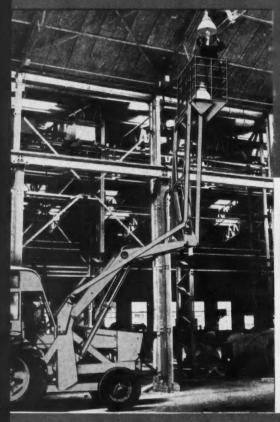
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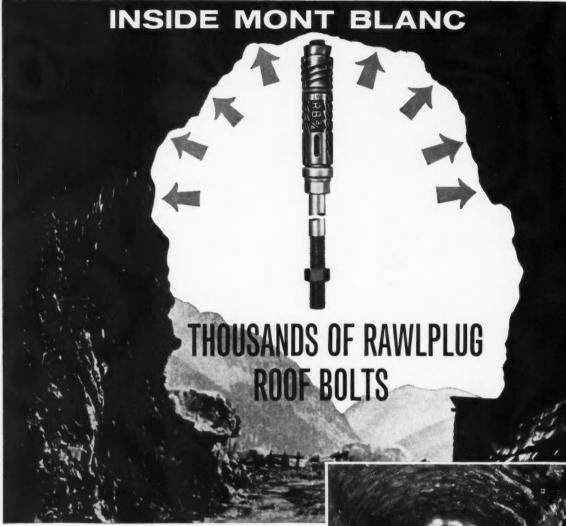
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Photographs by courtesy of Societa Italiana per Condotte D'Acqua di Roma

Fixing steel wire netting with Rawlplug Roof Bolts to protect personnel from falls of rock. Here the tunnel has reached a depth of 2,300 metres of the total 5,850 metres of the Italian Section. (Atlas-Copco "Lion" rock drills are driving the tunnel from a 30-ton, four-decked drilling platform).



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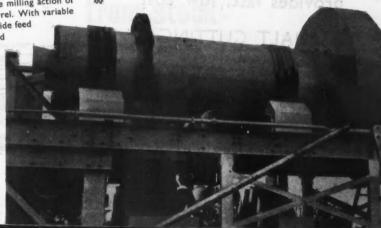
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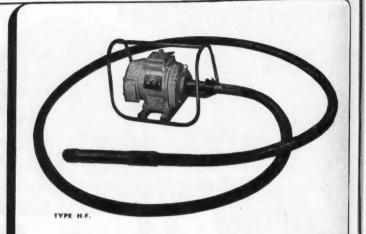
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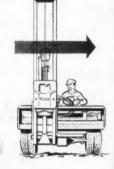
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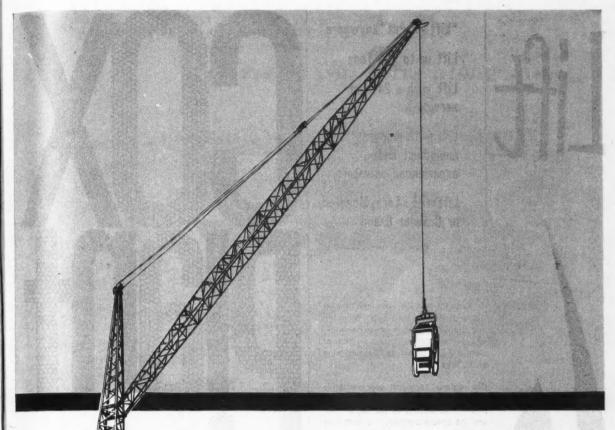


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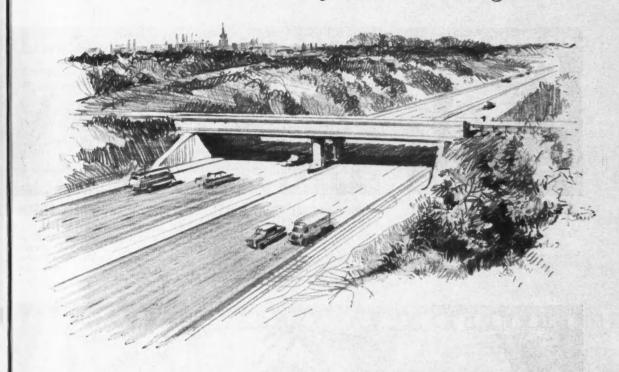
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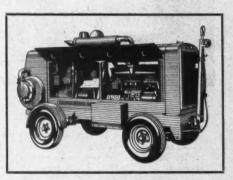
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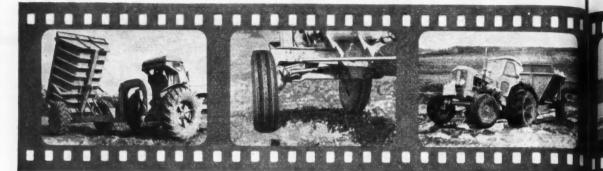
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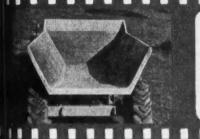
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### SAFETY AND DETACHABILITY

The Shawnee Poole coupling is mounted under-neath and forwards of the centre line of the tractor's rear axle, ensuring maximum stability and complete driving wheel adhesion. Additionally, the low-level mounting points of the coupling eliminate the dangers of side thrust and ensure maximum driver safety. The tractor is quickly de-tachable from the hauler for service requirements.

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The Shawnee Poole System is manufactured under British and Foreign patents granted and pending.

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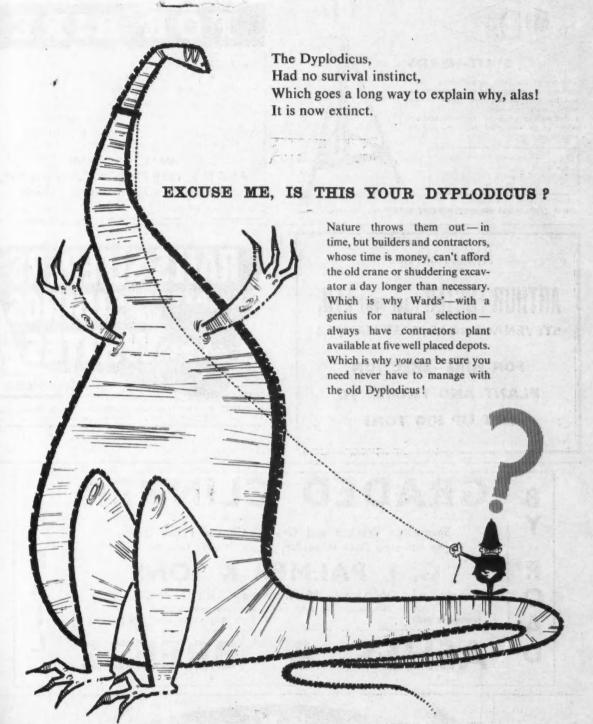
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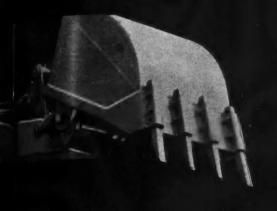
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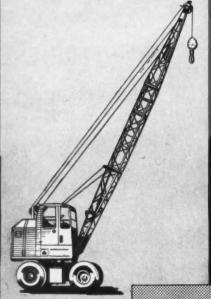
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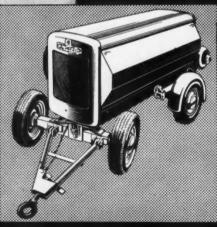
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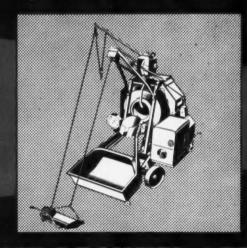
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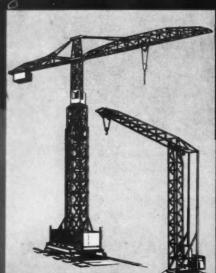
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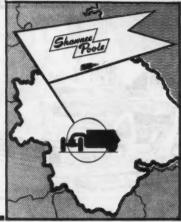
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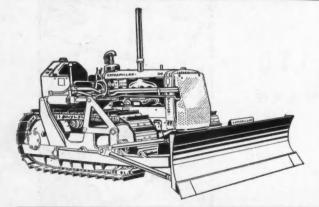






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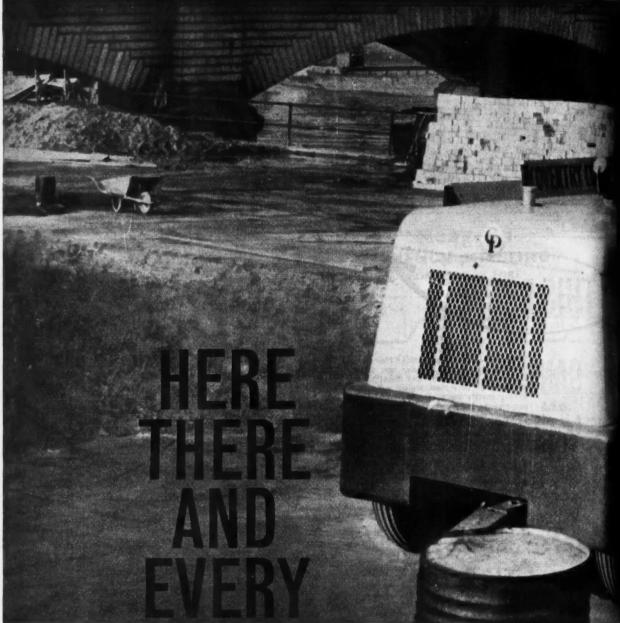
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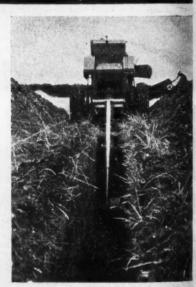
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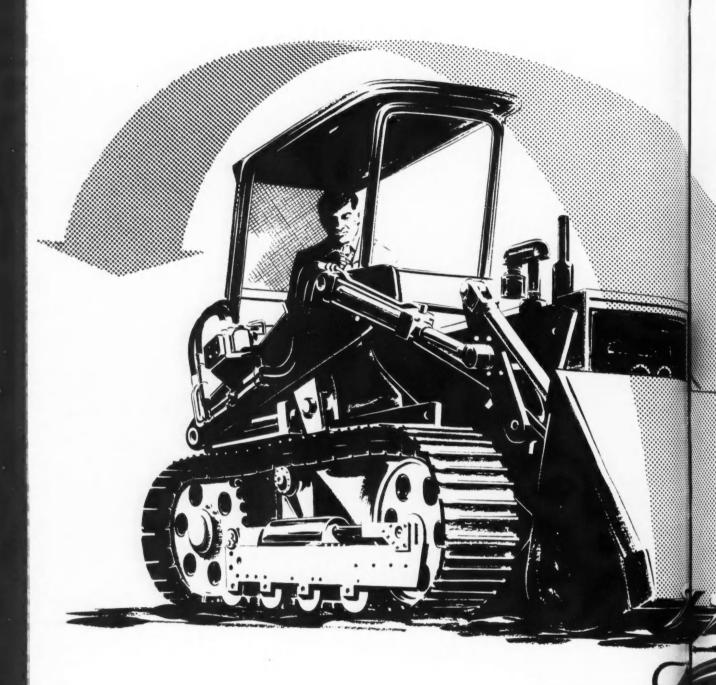
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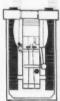


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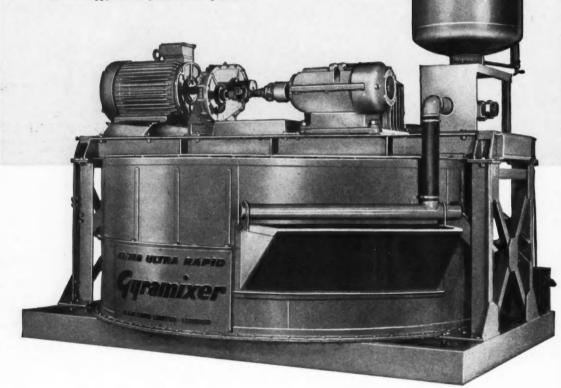
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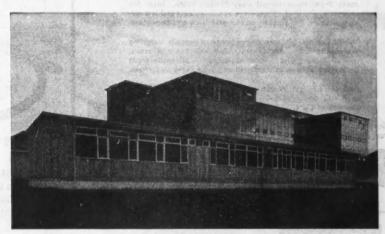
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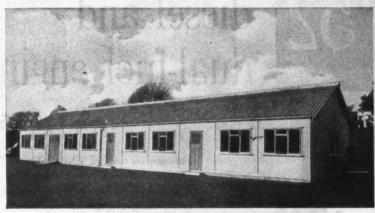
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CRICKET PAVILION, WEST HARNHAM, SALISBURY.
Photograph by courtesy of The City Engineer, City of New Sarum.



TEMPORARY CLASSROOMS, SPEEDWELL SECONDARY BOYS' SCHOOL. Photograph by courtesy of The Chief Education Officer, City & County of Bristol.



STORAGE BUILDING AT TENBY, PEMBS.
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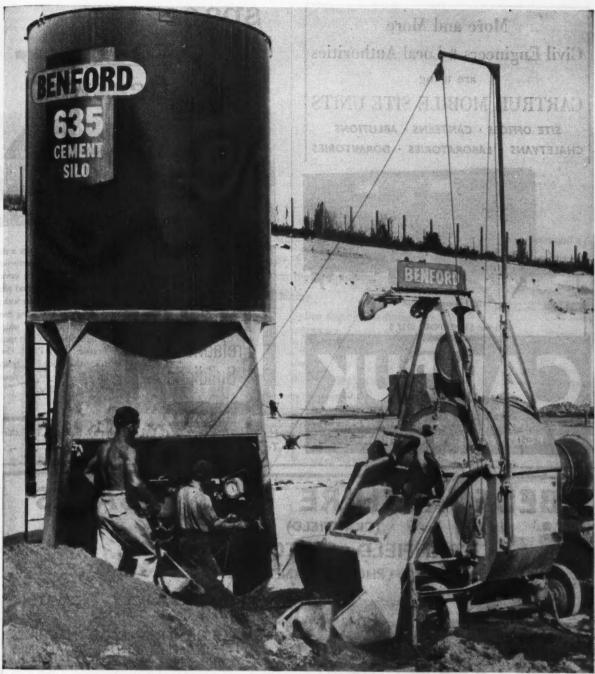
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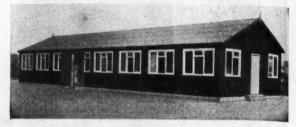


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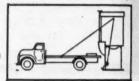
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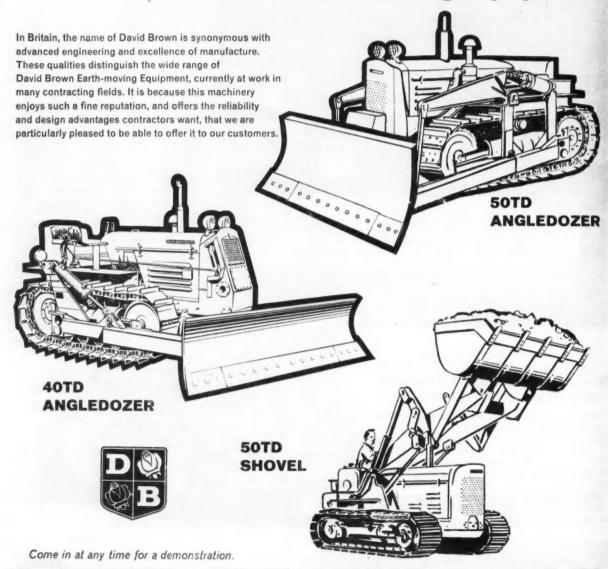
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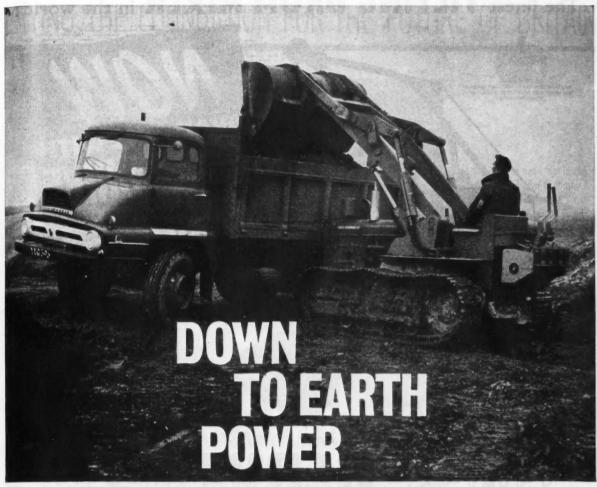
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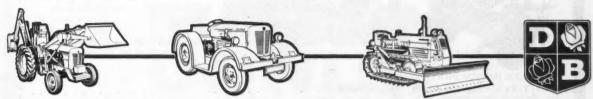
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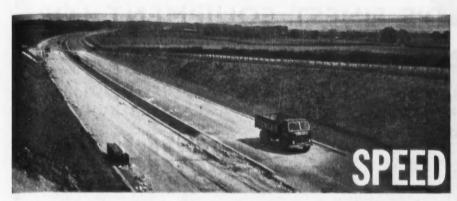
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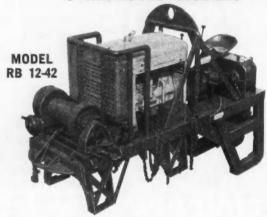
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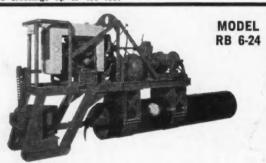
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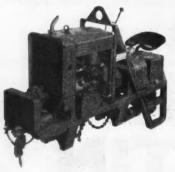
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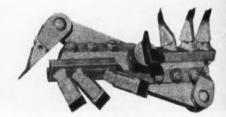
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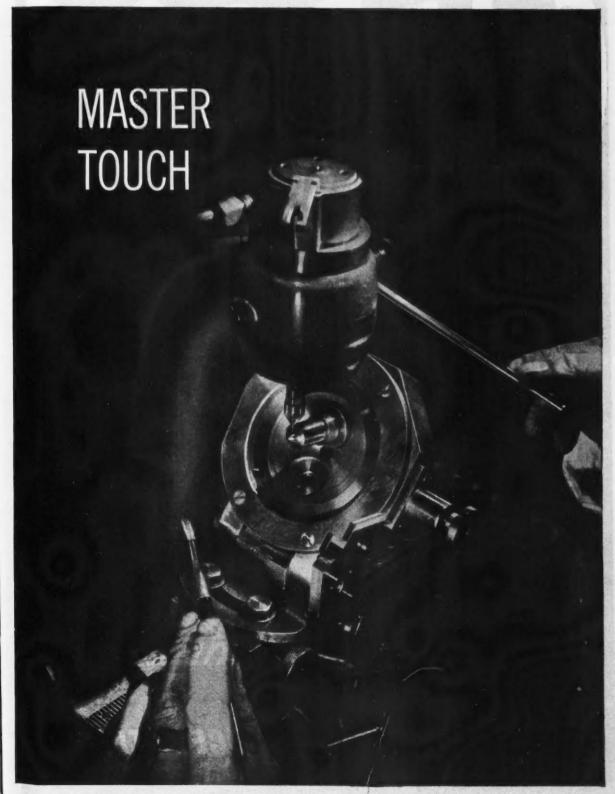
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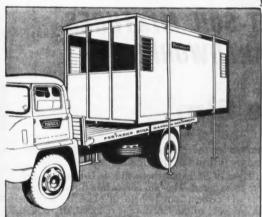
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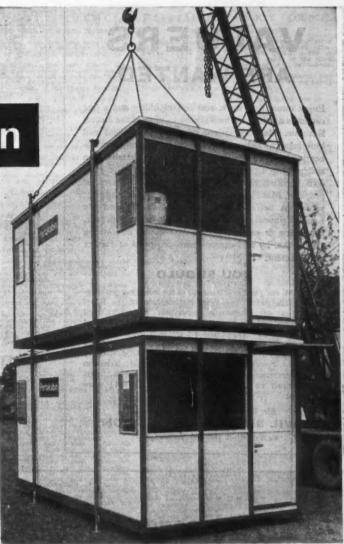
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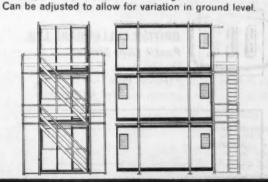
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E. J. COPE-BROWN,
Town Clerk.

BOROUGH OF GOSPORT. PIPING OF MOAT SOUTH OF PALMERSTON WAY.

PIPING OF MOAT SOUTH OF PALMERSTON WAY.

TENDERS are invited for EXCAVATING FOR and LAYING approx. 720 lin., vd. of 9in. and 12in. dia. CONCRETE TUBES, and the Construction of Nine Manholes, together with ancillary works, in connection with the above.

Tender documents are obtainable from the Borough Engineer. The Mail. Trinity Green, Gosport, upon deposit of Two Guineas, returnable on receipt of a bold of the control of t

der.
EDWARD ADDENBROOKE,
Town Clerk.

BOROUGH OF SHREWSBURY. MONKMOOR SEWAGE WORKS RECONSTRUCTION.

The CORPORATION propose shortly to invite TENDERS on a fixed price basils from an selected list of contractors for the CONSTRUCTION of a new SWAGE RESULTION OF A NEW SWAGE RESULT OF A NEW SWAGE

this list.

Details of the scheme and information required by the Corporation may be obtained from the Borough surveyor, Guidhail, Shrewsbury.

Colaing date for receipt of applications with including the colours of t S. R. H. LOXTON, Town Clerk.

CITY OF WINCHESTER.

TENDERS are invited for the FOLLOWING

CITY OF WINCHESTER.

TENDERS are invited for the FOLLOWING ROADWORKS:—

(1) Stockbridge Road, A.272. — Widening of approx. 250vd. of Footway and Construction of approx. 56vd. of R.C. Retaining Wall, which was a superox. 30vd. of Carriageway with the construction of approx. 30vd. of Carriageway with the construction of approx. 30vd. of Carriageway with the construction of all documents. Drawings may be inspected in the City Engineer's Department. The construction of all documents. Drawings may be inspected in the City Engineer's Department. The construction of all documents of the construction of the

R. H. McCALL, Town Clerk.

Guildhall, Winchester. 1st September, 1961.

BRAINTREE AND BOCKING URBAN

CODHAM MILL WATER SCHEME. CONTRACT NO. 5.

The Council will shortly be inviting TENDERS from selected Contractors for the CONSTRUCTION of REINFORCED CONCRETE WATER - RETAINING STRUCTURES, below and above ground level, HIGH-CLASS BRICK BUILDINGS, CONCRETE ROADWAYS and ancillary works, at their CODHAM MILL SITE. The site will have an output of 60,000 gallons of water per hour. The main structures will be an bored piles that have been sunk under another Contract.

red piles that have been auministract.
It is expected that ground water will be encountered lithin 2ft. of surface level.
Only contractors who are fully experienced in this ass of work will be considered. Sub-contracting the brick buildings will be permitted providing in nominated firm is thoroughly experienced and proved.

operations with a time in the considered and contractors who are desirous of being considered for the selected list should apply, in writing, in the first instance, to the Council's Consulting Engineers, Messrs. Herbert Lapworth Partners, 25 Victoria Street, Wettminster, S.W.1.

The Council does not bind itself to accept the lowest or any Tender.

W. BALSON Clerk of the Council.

BENFLEET URBAN DISTRICT COUNCIL. PRIVATE STREET WORKS.

TENDERS will shortly be required for the MAKING-UP of NEW PARK ROAD (Part) and CROFT ROAD. South Benfiect.

The works comprise approx. 5,200 super. yd. of Concrete Footway: 800 lin. yd. of Surface Water Sewer; and 1,600 lin. yd. Kerbing.

Contractors who desire to receive a Specification, comms of Tender and Bills of Quantities should make application to the Engineer and Surveyor to the Council not later than 12 Noon on MONDAY. 2nd October.

Application should be accompanied by a deposit of Application should be accompanied by a deposit of Tender.

GRIJIGHINGS

D. GRUDGINGS, Clerk of the Council.

Council Offices, Thundersley, Essex.

KENT COUNTY COUNCIL. STAIR BRIDGE, OLD HADLOW ROAD, TONBRIDGE.

TENDERS are invited from specialist firms by not ater than 6th OCTOBER, 1961, for REPAIRING the ABOVE BRIDGE by ENCASING BRICKWORK with GUNITE."

GUMTE:
Contract documents obtainable from County Surveyor. County Hall, Maldstone, on payment of deposit of £2 2s., returnable upon receipt of bona-fide Tender.
G. T. HECKELS.
Clerk of the County Council.

BOROUGH OF STAFFORD.

STAFFORD STREET/CHAPEL STREET

TENDERS are invited for the WIDENING and ASPHALT RESURFACING of approx. 2,250 sq. yd. of CARRAGEWAY, together with Site Clearance, Kerbing, Flagged Footpaths, Surface Water Drainage, and ancillary works.

Tender documents can be obtained from T. H. HIGSON, B.Sc., A.M.I.C.E., Borough Surveyor, Mount Street, Stafford.

Street, Stafford.

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T. BROUGHTON NOWELL. Town Clerk.

BOROUGH OF STAFFORD.

RICKERSCOTE ROAD BRIDGE IMPROVEMENT. APPROACH WORKS.

TENDERS are invited from experienced public works contractors for the WIDENING, REALIGNMENT and RAISING of approx. 400 lin. yd. APPROACHES to RICKERSCOTE ROAD BRIDGE.

The works include Fencing, Drainage, Earthworks, Kerbing, Carriageway and Footway Construction. Form of Tender, Conditions of Contract, Specification, Bills of Quantities and Plans may be obtained on request from T. H. HIGSON, B.S.C., A.M.I.C.E., M. I.M.I.C.E., M. I.M.I.C.E., M. I.M.I.C.E., M. I.M. I.C.E., M. I.C.E

Borough Half, Stafford. 8th September,

BARNET URBAN DISTRICT COUNCIL.

GRANGE AVENUE PRIVATE STREET WORKS.

GRANGE AVENUE PRIVATE STREET WORKS.

The Council Invites TENDERS for the MAKING-UP
OF GRANGE AVENUE under the Highways Act, 1959,
Code 1892.
The work comprises the Provision and Laying of
Precast Concrete Kerb and Channel, the Provisions of
Precast Concrete Kerb and Channel, the Provisions of
Footways in Tarmacadam with Grass Verges, and the
Conditions of Contract and Drawings may be
inspected, and Specification of Works, Bill of Quantities and Form of Tender obtained on application to
the Engineer and Surveyor of the Council, Rayenscroft
House, Wood Street, Barnet, on any day (Saturdays
excepted) between the hours of 9 a.m. and 5 p.m.
Select Tender usue to Thurschay, 28th September, 1961, and marked in the top left-hand corner
of the envelope "Making-up of Grange Avenue."
The Council does not bind itself to accept the
lowest or any Tender.

ALFRED S. MAYS,
Clerk of the Council,

Municipal Offices, Wood Street, Barnet, Herts. 7th September, 1961.

CANNOCK URBAN DISTRICT COUNCIL. PROPOSED CENTRAL 'BUS STATION, CANNOCK.
STAGE II—ROADS AND SEWERS.

PROPOSED LETTING

TENDERS are invited from suitably experienced civil engineering contractors for the CONSTRUCTION of CONSTRUCTION

Council House,
The Green,
Cannock, Staffs.
Sth September, 1961.

LEEDS REGIONAL HOSPITAL BOARD.

TO: HEATING CONTRACTORS.

FIXED-PRICE TENDERS are invited for CARRYING OUT: (a) HEATING and HWS INSTALLATION. (b) ELECTRICAL INSTALLATION, in the New Ward Block at BEMPTON. LANE MOST of Tender and Specification and Drawings, stating clearly for which part documents are required, and accompanied by a deposit of £2.2s. in respect of each part required (which will be refunded on receipt of a bona-fide Tender and other Contract documents), must be made to the Regional Engineer, at the undermentioned address, not later than 12 Noon on TUESDAY. 26th September, 1961. Cheques should be made payable to the Leeds Regional Hospital Bob made payable to the Leeds Regional Hospital Bob will be made payable to the Contract documents, or at the Office of the Regional Engineer, or at the Office of the Regional Engineer, or at the Office of the Group Engineer, Scarborough, Sealed Tenders, in the endorsed envelope provided, must be delivered to the undersigned not later than 12 Noon an WEDNESDAY, 18th Octobr, 1961.

The Board does not bind itself to accept the lowest or any Tender.

WM. A. SHEE.

Secretary to the Board.

WM. A. SHEE, Secretary to the Board.

Park Parade, Harrogate, Yorkshire.

CONTRACTS

FLINTSHIRE COUNTY COUNCIL.

TENDERS are invited for the RECONSTRUCTION of an existing STONE CULVERT in PRECAST COMCRETE TUBES under the TRUNK ROAD A.494 at 
ASTON HILL, HAWARDEN. The whole of the work 
to be carried out in heading and will be approx. 
20 iln. yd. 
Forms of Tender obtainable from the County Surveyor, Llwingsin, Mold to be returned to me before 
Noon, MONDAY, W. HUGH JONES.

County Buildings, Cierk of the County Council.

County Buildings,

BOROUGH OF CHELMSFORD.

FIXED-PRICE TENDERS are invited for the RECTION of 13 BUNGALOWS and FIVE GARAGES at MEADGATE AVENUE, Great Baddow. Specifications, Bill of Quantities and Forms of Tender may be obtained from the Borough Engineer on or after the 26th September on Dayment of a concept of a bona-fide Tender not subsequently withdrawn, together with the return of all documents supplied.

Cheques should be made payable to Chelmsford Corporation.
Plans of the Bungalows and Garages are available for inspection at the Municipal Offices, Coval Lang. Tenders are to be returned to the undersigned by Noon on the 25th OCTOBER, 1961. Bills of Quantities are to be returned to the undersigned by Noon on the 25th OCTOBER, 1961. Bills of Quantities are to be returned to the Bongalows are to be returned to the Bongalows are to be returned to the Bongalows.

The Council do not bind themselves to accept the lowest Tender.

B. A. FRANCIS. Town Clerk.

URBAN DISTRICT COUNCIL OF

LAYING OF 6IN. DIA. ASBESTOS-CEMENT WATER MAIN FROM GLENMORE ROAD TO BUTLIN'S HOLIDAY CAMP.

TENDERS, on a fixed-price basis, are invited from experienced contractors or LAVING 900vd. of 6in. LAVING 900vd. of 6in. Drawing and I.C.E. Conditions of Contract may be seen, and Specification, Bill of Quantities and Form of Tender obtained from the Engineer and Surveyor, Council Offices, 37 Bienheim Road, Minehead, on and after the 18th September, 1961.
Tenders on the form of the following the contract of the following the f

Council Offices, 37 Blenheim Road, Minehead, Somerset.

PETERSFIELD URBAN DISTRICT

REBUILDING FILTER WALLS—SEWAGE DISPOSAL WORKS, PETERSFIELD.

TENDERS are invited for the REBUILDING of the FILTER WALLS at the SEWAGE DISPOSAL WORKS, Petersfield. Tender documents may be obtained from I. THOMAS, A.M.I.C.E. Engineer as be obtained from I. THOMAS, A.M.I.C.E. Engineer as the control of the co

H. H. CREEDON. Clerk of the Council.

Town Hall, Petersfield, Hants. 9th September, 1961.

THURROCK URBAN DISTRICT COUNCIL. ENGINEER AND SURVEYOR'S DEPARTMENT.

STANFORD-LE-HOPE BY-PASS— CONSTRUCTION OF FOUNDATIONS AND PIERS FOR OVERLINE BRIDGE "B."

TENDERS are invited from contractors with experience in bridge works for the CONSTRUCTION of TWO REINFORCED CONCRETE PIERS each approx. The works are in connection with a proposed bridge over the railway, and are required to be completed before the electrical services are put into operation. Copies of the Specification, Bills of the period of render many control of the proposed of the Specification, Bills of the Reinford of the Specification of the Specificat

A. E. POOLE, Clerk of the Council.

THURROCK URBAN DISTRICT COUNCIL. ENGINEER AND SURVEYOR'S DEPARTMENT.

STREET LIGHTING-LONDON/TILBURY TRUNK ROAD, A.13.

TENDERS are invited for the PROVISION and ERECTION of 11 GROUP "A" STREET LIGHTING

NITS.

Form of Tender, Specification and Bills of Quantities may be obtained from the Engineer and Surveyor.

Council Center, Witchell Lane, Grays, on payment of the Council Center of the Council Center of the Ce

Council Offices, Whitehall Lane, Grays. 7th September, 1961.

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#### CONTRACTS

SUPPLEMENT

COUNTY BOROUGH OF ROTHERHAM. CONTRACT FOR 89 FLATS AND 104 GARAGES.

CONTRACT FOR 89 FLATS AND 104 GARAGES.

The COUNCIL is inviting TENDERS for the ERICTION of FIVE BLOCKS of THREE-STOREY FLATS. THREE BLOCKS of TWO-RESTOREY FLATS and 104 GARAGES in LAUDSDALE ROAD, on the East Herringthorpe Estate.

Contractors who are desirous of tendering should apply to the Borough Engineer, Municipal Offices, Rotherham, not later than 10 a.m., 29th SEPTEMBEWIND CONTRACT OF THE PROPERTY OF TH

JOHN S. WALL, Town Clerk.

Municipal Offices, Howard Street, Rotherham. 11th September,

I JRBAN DISTRICT COUNCIL OF CORBY.

ERECTION OF OLD PERSONS' FLATLETS-STUDFALL AVENUE, CORBY.

STUDFALL AVENUE, CORBY.

The above Council invite TENDERS for this WORK, comprising a Two-storey Block of 24 Flatlets for Old People. One Warden's Command Laundry.

Copies of the Bills of Quantities and Laundry.

Copies of the Bills of Quantities and Form of Tender may be obtained from the undersigned on payment of a deposit of £3 3s. (cheques being made payable to the Urban District Council of Corby), returnable on receipt of a bona-fide Tender, returnable on receipt of a bona-fide Tender.

Council Offices during normal working hours.

Tenders are to be returned to the undersigned, in the endorsed envelope provided, not later than 12 Noon on FRIDAY. 6th October, 1961.

The Council do not bind themselves to allowest or any Tender.

G. B. BLACKALL.

Clerk of the Council.

Council Offices, Corby, Northants. 11th September, 1961

FARNHAM URBAN DISTRICT COUNCIL. A.287-SOUTH STREET, FARNHAM.

RESURFACING (PART).

The Council invite TENDERS for the RECONSTRUCTION and SURFACING in COARSE COLD ASPHALT of the ABOVE-NAMED SITE, the approx. area being 400 super. If the work may be obtained from the Engineer and Surveyor, and Tenders should be returned to the undersigned not later than 9 a.m. on MONDAY, the 9th October, 1961.

H. W. UNDERDOWN, Clerk of the Council.

Council Offices, South Street, Farnham, Surrey,

CREDITON RURAL DISTRICT COUNCIL.

SANDFORD SEWERAGE AND SEWAGE DISPOSAL.

SANDFORD SEWERAGE AND SEWAGE DISPOSAL.

The Council invite FIXED-PRICE TENDERS from contractors having experience in similar work, for the LAYING of approx. 1,700 lin, yd, of 9in, and of sin, dia. STONEWARE SEWERS and 350 lin, yd, or 5in, dia. SPUN-IRON RISING MAIN, together with Concrete Manholes, the Construction of a Pumping works, at Sandford, Devon.

Tender documents may be obtained from the Council's Consulting Civil Engineers, MESSRS-HARVEY, MGGILL AND HAYES, & Richmond Road. Exeter, on and after Thursday, 21st September, and at whose Office, Plans may be inspected by appointman applications are to be accompanied by a cheque for £5 Ss., made payable to the Crediton Rural District Council, and, in the case of contractors who have not previously carried out work for the Council, or under the direction of the Engineers, by particulars of similar work executed, and the names and addresses of the Engineers concerned. The deposit will be subsequently withdrawn, and the return of all Tender documents.

documents.

Tenders are to be delivered in a plain sealed envelope endorsed "Sandford Sewerage," but bearing in name or mark of identification, to the undersigned after than 12 Noon on THURSDAY, 12th October.

The Council do not bind themselves to accept the

The Council do not bind themselves to accept the lowest or any Tender they may receive.

A. J. MADGE, Clerk.

Council Offices, Union Terrace, Crediton, Devon

THE TEES VALLEY AND CLEVELAND WATER BOARD.

THE LAYING OF 24 MILES OF LARGE-DIAMETER STEEL MAINS.

The Board will shortly be inviting TENDERS from selected specialist mainiaying firms for the LAYING of approx. 24 miles of 42in. to 24in. BITUMEN LINED and SHEATHED STEEL MAIN with Welded and Johnson Coupling type Joints. The welding will be carried out by a nominated sub-contractor. The route of the main will be from Darlington to Wilton (near Middlesbrough) via Billingham, and the tis anticipated that the contracts. It is anticipated that the will be let in November, 1961, and the remaining two in April, 1962.

November, 1961, and the remaining two in April, 1962.

Ontractors who wish to be considered for inclusion in the list of those invited to tender for this mainlaying work should warply in writing to the undersigned not a considerable of the state of the

EMBER, 1961.

E. A. MORRIS,

Clerk of the Board and Chief Executive

Officer.

Water Board Offices, G.P.O. Box No. 60, Corporation Road, Middlesbrough,

#### CONTRACTS

EAST SUFFOLK COUNTY COUNCIL. BOROUGH OF LOWESTOFT.

RINGSHALL PRIMARY SCHOOL-ADDITIONS.

The Council propose to invite FIRM-PRICE TENDERS from selected builders for the ERECTION Of ADDITIONAL CLASSROOMS and LAVATORIES totalling some 2.850 sq. ft. floor area, together with Minor Alterations to the existing Building. Drawings, prepared under the direction of E. J. CUNDLIFFE, A.R.I.B.A., County Architect, can be seen at the County Hall, Ipswich, between 9 a.m. and 5 p.m.

CUNDLIFFE, A.R.I.B.M.
seem at the County Hall, Ipswich, between 9 a.m.
and 5 p.m.
Building contractors wishing to tender should
submit their names to the COUNTY ARCHITECT,
County Hall, Ipswich, before the 3rd OCTOBER, 1961.
From the names submitted, a number of builders will
be selected, and these will be furnished with Bills of
Quantities, Drawings, etc., on or about the 12th
OCTOBER; builders not selected will be notified at
the same time.
Tenders are required by the 9th NOVEMBER, 1961.
Tenders are required by COUNTY COUNCIL.

INVERNESS COUNTY COUNCIL.

Tenders are invited for the CONSTRUCTION of a MASS CONCRETE DAM on the ALLT A' GHOIRTEIN, Slow Sand Filters of capacity 12,000 gallons per day, and the Provision of Materials for, and Laying of, approx. 4,500vd, of 2ln, and 3ln, dis. A.C. or P.V.C. Site meeting an 26th September, from Broadford Notel, at 10,30 a.m. Contract documents from the Country Water Engineer, Country Buildings, Inverness.

Tenders, marked "Elool Water Supply." by 17th OCTOBER, to the COUNTY CLERK, County Buildings, Inverness.

BOROUGH OF BASINGSTOKE.

SOUTH HAM ESTATE, BASINGSTOKE.

SOUTH HAM ESTATE, BASINGSTOKE.

TENDERS are invited for the ERECTION of a total of 196 DWELLINGS, comprising Two-storey Flats, Four-storey Maisonnettes, and Houses: also 147 Garages. The Scheme is situated an ana site where main roads and sewers are nearline completion, but included in the Contract will be ancillary Service Roads are forms of Tender, Bills of Quantities and General Conditions of Contract may be obtained from the Borough Architect, ERIC ALMOND, Dipl.Arch., AR.I.B.A., Municipal Buildings, Basingstoke, on payment of a deposit of \$2 2s, which will be returned to receipt of a bona-fide equivalent to the undersigned by Noon on TUESDAY, 24th October, 1961, and it is anticipated that work will commence during January, 1962.

The Council do not bind themselves to accept the lowest or any Tender.

R. J. PURVIS. Town Clerk.

BOROUGH OF COLWYN BAY. RESURFACING OF TRUNK ROAD A.55.

RESURFACING OF TRUNK ROAD A.SS.

TENDERS are invited for the RESURFACING of approx. 9,000 so, yd. of the ABOVE ROAD between Victoria Road. Old Coldwn. Babather Fire Station. Colwyn Bay.

Tenders in Colwyn Bay.

WILMAN, A.M.I.C.E. Borough Engineer, Whalley Range, Lansdowne Road, Colwyn Bay.

Tenders, in plain sealed envelopes enforced resurfacing—Trunk Road A.SS, must be delivered to the undersigned not later than 12 Noon on MONDAY, 9th October, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

HAROLD E. BRAITHWAITE,

Town Hall.

Town Hall, Colwyn Bay. 12th September, 1961.

A N D C O U N T Y

SUPPLY OF 'BUS SHELTERS.

TENDERS are invited for the SUPPLY and DELIVERY of 'BUS SHELTERS.
Application for the Bill of Quantities and Form of Tender to be 'made to the undersigned.
Tenders must be received by 10 a.m. on the 9th OCTOBER, 1961.
The lowest or any Tender will not necessarily be accepted.

JOHN ATKINSON, Town Clerk

Town Hall,
Newcastle upon Tyne.

STAINES URBAN DISTRICT COUNCIL. IMPROVEMENT WORKS-LITTLETON LANE.

FIXED-PRICE TENDERS are invited for IMPROVE-MENT WORKS in the road known as Littleton Lane. The works combrise the following approx. quantities: Carriageway—Break out existing concrete, lay 9in. lean-mix with 3½in. asphalt surface 300 aq. yd.: New Kerb—2,905 iin. yd.; Verges—Fill with tosooli 850 cu. yd.; Surface Water Drainage; Guilles 104:

New Kerb—2,905 in. vd.: Verges—Fill with topsoil 850 cut. Surface Water Drainage; Gullies 104: Christ 104. Surface Water Drainage; Gullies 104: Specification, Bill of Quantities. Form of Tender and Plans may be obtained from the Office of the Engineer and Surveyor, 240 London Road, Staines, upon payment of a deposit of £2 2s. which will be returned upon receipt of a bona-ride Tender not subsequently withdrawn, together with the return of all documents. Sealed Tenders, in the endorsed envelope provided, and free from any mark indicating the name of the sender, shall be returned to the undersigned not later than \$ p.m. on THURSDAY, 5th October, 951. The Council does not bind itself to accept the lowest or any Tender.

F. ENTWISTLE, Clerk of the Council.

NOTTINGHAMSHIRE STANDING JOINT

POLICE UNIFORM AND WATERPROOF CLOTHING.

POLICE UNIFORM AND WATERPROOF CLOTHING.

TENDERS are invited for the SUPPLY of POLICE UNIFORM (including Shirts, Collars and Ties, and Waterproof Clothing) for 1952-63.

Tender Forms and Conditions of Contract are Conditions of County Police Headquarters, Epperstone Manor, Nottingham, and patterns of garments and specifications may be inspected at the Police Headquarters.

Neither the lowest nor any Tender will necessarily be accepted.

Completed Tenders and samples of materials should reach the undersigned by 27th CCTOBER, 1961.

Clerk of the Standing Joint Committee.

County Hall, West Bridgford, Nottingham.

CONTRACTS

HIGHWAYS ACT, 1959.

GUNTON HALL ESTATE (PART).

SOIL SEWERING—
BISHOPS WALK (PART), HARRINGTON AVENUE,
MIDDLE WAY (PART), AND SQUIRES WALK.

MIDDLE WAY (PART), AND SQUIRES WALK.

TENDERS are invited for the ABOVE, comprising the FOLLOWING:

Provide and Lay approx, 480 lin. yd. of 6in. dia., Sool lin. yd. of 9in. dia. Glazed Stoneware Pipes; also 480 lin. yd. of 12in. Concrete pipes, together with Manholes and other appurtenant works of Contract will be available for inspection at the Borough Engineer's Office, 49 High Street, Lowestoft, and Form of Tender, Specification and Bills of Quantities can be obtained from the Borough Engineer upon payment of a deposit of Two Guineas which will be refunded upon the receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents, and the return of all documents, and the return of all documents. No Tender will be accepted unless in a sealed envelope endorsed "Tender—Soil Sewering—Gunton Hall Estate, Lowestoft," and bearing no mark or writting by which the tenderer can be identified.

The Council do not bind thenselves to accept the lowest or any Tender.

F. B. NUNNEY. Town Clerk.

Town Hall,
Lowestoft.
13th September, 1961.

BOROUGH OF ALTRINCHAM. PRIVATE STREET WORKS-ABBOTSFORD GROVE

PRIVATE STREET WORKS—ABBOTSFOND GROVE.

FIXED-PRICE TENDERS are invited for the MAKING-UP of ABBOTSFOND GROVE. Timeerley. Specification. Bill of Quantities and Form of Tender may be obtained from, and Drawings inspected at the Office of the Borough Surveyor. Town Hall, Altrincham, during normal office hours, upon payment of the property of the prop

Town Hall, Altrincham. September, 1961.

RURAL DISTRICT OF DEPWADE.

CONSTRUCTION OF BOREHOLE.

CONSTRUCTION OF BOREHOLE.

The COUNCIL invite TENDERS for the CONSTRUCTION near Pulham St. Mary of a 24in. dia. BOREHOLE to a depth of about 260ft., of which the top 120ft. is to be lined with Steel Tube; and, after completion of the Carrying Out of a Continuous Pulmping Test for a Carrying Out of a Continuous Fungineer and Surveyor, ipswich Road, Long Stratton, Norwich, Nor-72W, on payment of a deposit of £3 which will be returned an receipt of a bona-fide Tenders, endorsed "Borehole," are to reach the Tenders, endorsed "Borehole," are to reach the CTOBER 1961, to later than 9 a.m. on 9th OCTOBER 1961, to late

W. J. FURNELL, Clerk of the Council.

Council Offices, Pulham Market, Diss, Norfolk.

HOLLINGBOURN RURAL DISTRICT WEAVERING STREET SEWERAGE.

WEAVERING STREET SEWERAGE.

The above-named Council Invite TENDERS for the EXECUTION OF WORKS OF SEWERAGE, comprised in the Furnishing and Laying of about 2,500vd. of in. Stoneware Pipe Sewers, Manholes, Ventilators, etc. ontractors, about enant works.

Contractors about enant works.

Contractors about enant works. and who are desirous of tendering, should send their names and addresses to the Council's Consulting Engineers. MESSRS D. BALFOUR AND SONS, 131 Victoria Street, Westmer Williams and Service Services. The Council of the Service Services of the Service Services of the Service Services of the Service Services of the Servic

Council Offices, 73 College Road, Maidstone, Kent. STRATFORD - ON - AVON

BLACKFORD PASTURES HOUSING SITE, HENLEY-IN-ARDEN-STAGE V.

FINAL SURFACING AND INCIDENTAL WORKS.

FINAL SURFACING AND INCIDENTAL WORKS.

TENDERS are invited, on a Fixed-orice Basis, from experienced contractors for the CONSTRUCTION of FOOTPATHS, the Laying of Precast Concrete Kerbs, and the Final Surfacing of the Carriageway at the ABOVE SITE.

Copies of the Specification, Bills of Quantities and Form of Tender may be obtained on application the Engineer and Surveyor, I. WOOD, ALAS.

A.M.I.P.H.E., S Tyler Street, Stratford-on-Alon, and Tender Should be delivered to the undersigned not later than 12 Noon om THURSDAY, the 12th October, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

D. W. NEWPORT.

Clerk of the Council.

Council Offices, 11 Guild Street, Stratford-on-Avon. 13th September, 1961.

#### CONTRACTS

COUNTY BOROUGH OF PRESTON.

CONSTRUCTION OF EXTENSION OF

TENDERS are invited for the CONSTRUCTION in in WET-MIX. Surfaced with Bituminous Macadam, mation of Verges-and Footpath, of the EXTENSION HAREWOOD ROAD to the rear entrance to the station on Blackpool Road, a distance of approx.

yd.

specification and Bills of Quantities may be obtained
in the Borough Engineer and Surveyor. Municipal
liding. Preston, on payment of a deposit of £2 2s.
tin will be returned on receipt of a bona-fide

der.
enders to be received by the not later than a.m., MONDAY, 9th October, 1961.

W. E. E. LOCKLEY, Town Clerk.

Municipal Building, Preston

ROROUGH OF ELLESMERE PORT.

TENDERS are invited for the EXECUTION of MORKS OF CONVERSION to FIREPLACES, etc., in HOUSES at PRINCES ROAD, Elesamer Port, in coordance with the requirements of the Elesamer eff Borough Council (No. 4) Smoke Control Order,

of solution and Form of Tender can be obtained on the Borough Architect and Housing Director, been Street. Ellesmere Fort and Housing Director, been street of the Borough Control of the Street Control o

R. J. BERNIE, Town Clerk.

Municipal Offices, Ellesmere Port

CKIPTON URBAN DISTRICT COUNCIL.

TENDERS invited for MAKING-UP MARTON STREET and GISBURN STREET, respectively 94yd. Works comprise Construction of Carriageways and fothways, with small amounts of Excavation prinage.

Definition of Tender, Specification and Bills of Quan-forms of Tender, Specification and Bills of Quan-miles obtainable from Engineer and Surveyor, Town tall, Skipton, on deposit of £1 1s. for each street refunded on receipt of bona-fide Tender). Drawings ad Conditions of Contract may be inspected at office, Tenders, in envelope provided, bearing no indica-no of sender, to be in by 10 a.m., 16th OCTOBER, pool or sender, to be in by 10 a.m., 16th OCTOBER, 1961. The Council do not bind themselves to accept the owest or any Tender.

L. E. SMITH, Clerk to the Council.

RICKMANSWORTH URBAN DISTRICT

EASTBURY FARM ESTATE—SURFACE WATER

TENDERS are invited for the CONSTRUCTION of 100% of SURFACE WATER SEWERS in Concrete idea and sizes ranging from 30in-5in, dia., for the idea and sizes ranging from 30in-5in, dia., for the idea of the constitution of Manholes, and the Connection of Manholes, and the Connection of Manholes, and the Connection of the property of the control of Manholes, and the Connection of Manholes and Cullies. The works are to be carried in roads on the Eastbury Farm Estate, Northwood, Conditions of Contract, Specification, Bills of Quanties and Forms of Tender may be obtained from the idea of the Control of the Co

Sirveyor. Tenders, in a plain sealed envelope endorsed "Tender for Eastbury Farm Estate—Surface Water Brainage," are to be returned to the undersigned of later than 12 Noon on MONDAY, 9th October,

not later than 12 house on the services to accept the lowest or any Tender.

C. G. RANSOME WILLIAMS,

Clerk of the Council.

BOROUGH OF MIDDLETON. FOOTPATH RECONSTRUCTION WORK-

TENDERS are invited for the ABOVE WORKS, maisting of the Laying of approx. 1.050 lin. yd. freast Concrete Kerb and 2.150 sq. yd. Asphalt (Sand Gnet). So the Conditions of Contract. Specification. Big Countties and Form of Tender may be obtained application to the Borough Engineer and Surveyor, Tom Hall, Middleton, near Manchester, and should eduly completed and returned in pital sealed envelopes edorsed "Footpath Reconstruction Works," to the widersigned not later than 12 Noon on WEDNESDAY. 11th October. 1961.
The Council does not bind itself to accept the limits or any Tender.

F. JOHNSTON.

F. JOHNSTON, Town Clerk.

Town Hall,
Middleton,
Near Manchester,
15th September, 1961.

SOUTHAMPTON HARBOUR BOARD. DREDGING-TENDERS.

DREDGING—TENDERS.

The Southampton Hartbour Board invites TENDERS for WIDENING the WESTERN MARGIN of the UNER SWINGLING GOUND adjacent to the Gymp Roal, off the Southampton Old Docks. The quantity invited is approx. 700,000 cu. yd. (in situ). Conditions of Contract. Specification, Bills of Quantity Mills, Form of Tender and Plan may be obtained from the Board's Hydrographic Surveyor, CMDR. D. H. MCMILLAN, M.B.E. R.N.R., F.R.I.C.S. (Chartered Arreyor), at the Board's Hydrographic Office, on partituded on the Celebrate of Southern Which will be sufficient of all documents.

Specification and Plan may be inspected at the Board's Hydrographic Office, Harbour Offices, Town Guy.

wy.
Tenders must reach the undersigned, in the envelope
wided, marked "Dredging Tender — Contract
0, 20," not later than Noon on MONDAY, 9th

Clober, 1961.
The Southampton Harbour Board does not bind self to accept the lowest or any Tender.

C. P. EASTBURN. General Manager and Clerk.

Harbour Offices, Town Quay, Southampton, 9th September, 1961.

#### CONTRACTS

I ANCASHIRE COUNTY COUNCIL.

TENDERS are to be invited from selected firms for DEVELOPMENT of PLAYING FIELDS, etc., at FOLLOWING.—

(1) Eccles Patricroft St. Patrick's R.C. Secondary Charles (1) Eccles Patricroft St. Patrick's R.C. Secondary Charles (2) Eccles Patricroft St. Patrick's R.C. Secondary Lonal Playing Fields).

(3) Lytham St. Annes County Secondary School. Applications for documents to tender must be received by the COUNTY ARCHITECT, P.O. Box 26, 4th October, 1981, quoting Ret. A/G/CS.

COUNTY BOROUGH OF SUNDERLAND

COUNTY BOROUGH OF BURNLEY. PRIVATE STREET WORKS.

TENDERS are invited for the MAKING-UP of SIX STREETS, a total length of approx. 640yd., in Pitching and Bitumen Macadam.

Tender documents may be obtained on application to the Borough Engineer and Surveyor, 22/24 Nicholas Street, Burnley, on payment of a deposit of £2 which will be refunded on receipt of a bona-fide Tender. Tenders are to be returned to reach the undersigned of the country of

C. V. THORNLEY, Town Clerk.

ROROUGH OF TORQUAY.

DISMANTLING OF STEEL-FRAMED TIMBER STORES AND DEMOLITION OF BUILDINGS, OFFICES, ETC.— TEMPERANCE STREET, TORQUAY.

TENDERS are invited from experienced contractors the DISMANTLING of STEEL-FRAMED TIMBER ORES, together with the Demolition of Ancillary

STORES, together with the Demolition of Stores Stores of the Conditions of Contract, Specification, Copies of the Conditions of Contract, Specification, Plan, and Form of Tender may be obtained on application to the Borough Engineer, Town Hall, Torquay.

Tenders, which must be submitted in the manner indicated in the Contract documents, must be delivered in the Town Clerk not later than Noon on FRIDAY, 13th October, 1961.

indicated in the control later than Pount of the Town Clerk not later than Pount of 13th October, 1961.
The Corporation do not bind themselves to accept the lowest or any Tender.
T. ELVED WILLIAMS.
Town Clerk.

ROROUGH OF TOTTENHAM. FIVE HARD TENNIS COURTS-MARKFIELD RECREATION GROUND.

MARKFIELD RECREATION GROUND TENDERS are invited on a fixed-price basis for the CONSTRUCTION of Five BITUMEN MACADAM-SURFACED TENNIS COURT'S complete with Surrounds at the Borough Engineer's Department, Town Half, Tottenham, N.15, from whom the contract documents may be obtained on payment of £2 (returnable on receipt of a bona-fide Tender). Tenders, in plain sealed envelopes, endorsed "Construction of Five Mard Tennis Courts — Markfield indicating the sender, must be delivered to me by Noon on MONDAY, 9th October, 1961. LB.,

Town Clerk.

BOROUGH OF HARROW. DEMOLITION OF 194 STATION ROAD, HARROW.

DEMOLITION OF 194 STATION ROAD, HARROW.

TENDERS are invited for this DEMOLITION and CLEARANCE of the SITE.

Drawings and Conditions of Contract may be inspected at the Office of, and a copy of the Form of Tender, Specification, and Bills of Quantities obtained on application to, the Borough Engineer, at the Council Offices, Usbridge Road, Stammore, Middx., payable to Harrow Corporation, returnable where a bona-fide Tender reaches me in time.

Tenders, on prescribed forms, enclosed in a plain envelope, bearing no indication of 194 Station Road, Harrow, must be perfectly the station of 194 Station Road, Harrow, must be stationable of 194 Station Road, Harrow, must be

Town Clerk's Office, Harrow Weald Lodge, Harrow, Middx.

O F LEEDS. CIT HIGHWAYS DEPARTMENT.

HIGHWAYS DEPARTMENT.

The MIGHWAYS COMMITTEE of the LEEDS CITY COUNCIL Invite TENDERS for:

PRIVATE STREET WORKS:

Kerbing, Tarmacadam and Concrete Flagged Footpaths, Tarmacadam Carriageways, etc., in the following:—

ALBION AVENUE (Part),

THE GANGE ROAD (Part),

Forms of Tender and Bills of Quantities may be obtained upon payment of a deposit of One Guines, which amount will be returned upon receipt of a bona-fide Tender. Plans, Specifications and copies of the documents forming the contract may be inspected upon application to the Highways Engineer, 135 Kirkstall Road, Leeds, considered only when submitted sealed in the envelope provided, endorsed "Highways Department—Tender for Contractors' Works," and not bearing any name or mark indicating the sender. Tenders must be delivered at the Town Clerk's Office (Committee Department), Room 57, Cleic Hall, Leeds, 1, not later than 10 a.m. on THURSDAY, the lacement of any Tender will not necessarily be accepted.

W. J. HISCOCK.

W. J. HISCOCK, Highways Engineer. September, 1961.

CONTRACTS

COUNTY BOROUGH OF BOURNEMOUTH.

BOROUGH ENGINEER'S DEPARTMENT.

TENDERS FOR ELECTRIC TRUCKS AND

TENDERS are invited for the SUPPLY of the

TENDERS are invited for the SUPPLY of the SOLOWING:—

(a) One Electric Industrial Truck and Battery Charger of the Supply of the

COUNTY BOROUGH OF BOURNEMOUTH. BOROUGH ENGINEER'S DEPARTMENT.

TENDERS FOR 2-TON VAN.

TENDERS FOR 2-10M
TENDERS are invited for the SUPPLY of One 2-ton
SPECIAL-BODIED VAN—one 1951 30cwt. Bedford
Van to be taken in part exchange.
Specification and Tender Forms, obtainable from
the Borough Engineer, Town Hall, Bournemouth,
the Borough Engineer, Town Hall, Bournemouth,
returnable to me by the 1st NOVEMBEE 1961.
A. LINDSA A. Town Clerk.

WANDSWORTH BOROUGH COUNCIL. REINSTATEMENT OF TRENCHES.

Contractors with experience of the maintenance of artificial stone footpaths and the reinstatement of trenches in these paths who wish to TENDER for the RE-LAVING of some 40,000 sq. yd. of PAVING throughout the Borough, should submit names to me by MONDAY, 2nd October, 1961, giving details of experience, plant and supervisory stall available, together with the names of two technical referees. Bills of Quantities will be issued to selected contractors with a view to the completion of this work by the 31st March, 1962.

Municipal Buildings, Wandsworth, S.W.18.

ROYAL BOROUGH OF KINGSTON-UPON-

J. NOEL MARTIN.

CONSTRUCTION OF SURFACE WATER SEWER. RICHMOND ROAD/LOWER HAM ROAD.

TENDERS are invited for the ABOVE CONTRACT. The work comprises the Construction of approx. 620yd. of Circular Concrete Sewers, varying in diabetween 30in. and 39in., together with ancillary works.

620yd. or Lirura Soln. and 39in., together with ancient works.

Works.

Surveyor, Guildhall. Kingston-upon-Thames, upon parment of Two Guineas which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, enclosed in the envelope provided, must be delivered to the undersigned by First Post on FRTAL. eth October, 1961.

The control is not bound to accept the lowest or any Tender.

L. V. POWELL,
Town Clerk.

L. V. POWELL, Town Clerk.

Guildhail, Kingston-upon-Thames, September, 1961.

BOROUGH OF DOVER. WOOLCOMBER STREET AND MAISON DIEU ROAD

TENDERS are invited for the RECONSTRUCTION of approx. 220yd. of HIGHWAY (8.2059), including Partial Realignment of Surface Water Drainage. The Continuous 
New Bridge House, Dover.
13th September, 1961.

CLACTON URBAN DISTRICT COUNCIL.

HIGHWAYS ACT, 1959.

COLTHORPE AND OAKLEIGH ROADS.

CLACTON-ON-SEA.

TENDERS are invited for CARRYING OUT SEWERING, comprising the Laying of approx. 344 lin. yd. of 9in. dia. Flexible Jointed Concrete Pipes.

Drawings and General Conditions of Contract may be seen at the Office of the Engineer and Surveyor, Town Hall, Clacton-on-Sea, who will supply Tender documents against a deposit of £2 Zs., refundable on receipt of a bona-fide Tender.

Tender Forms, etc., must be delivered in a plain sealed envelope endorsed "Colthorpe and Oakleigh Roads Sewering," but bearing no name or mark indicating the endor, to the undersigned on or before and the control of the control o

Town Hall, Clacton-on-Sea.

WHISTON RURAL DISTRICT COUNCIL. PROPOSED IMPROVEMENTS TO EXISTING PROPERTIES-KNOWSLEY VILLAGE.

The Council Invites TENDERS for the CARRYING OUT of VARIOUS IMPROVEMENTS and REPAIRS to tem of their EXISTING DOMESTIC PROPERTIES INTIMEBARN ROAD, Knowsley, To avaings, Specification of their Existing Domestic Properties in TIMEBARN ROAD, Knowsley, The Gravings, Specification of the series of the Council Coun

Council Offices, Delph Lane, Whiston, Prescot, Lancs.

#### CONTRACTS

SUPPLEMENT

COUNTY BOROUGH OF BLACKPOOL.

TENDERS (by 2.30 p.m., MONDAY, 16th October, 1961) are invited for the SUPPLY and DELIVERY OF PRECAST CONCRETE FLAGS and KERBS, CONCRETE AGGREGATES, MACADAM and TAR for the 12 months commencing 1st January, 1962.

Specifications and Forms of Tender from Borough Surveyor (ARTHUR HAMILTON, B.Sc.), P.O. Box 17, Municipal Buildings, Blackpool.

BOROUGH OF PORT TALBOT. PROPOSED FILLING OF BAGLAN MOORS-PART 1.

PROPOSED FILLING OF BAGLAN MOORS—PART 1.

The CORPORATION invites TENDERS for the FOLLOWING WORK to be carried out by Contract:

(a) 35,000 cu. yd. of Topsoil Excavation and Stockpilling:

(b) 330,000 tons of Copper Slag Excavated, Hauled and Soread: and ancillary works.

Conditions of Contract. Specification and Bill of Quantities may be obtained from the Borough Engineer, G. V. GRIFFITHS. Am. LG. E. Borough Engineer, G. V. GRIFFITHS. Am. LG. E. Borough Contract. Specification and Bill of Contract. Specification and Contract of Contract. Specification and Contract of Contract. Specification and Contract of Con he Corporation does not bind itself to accept the st or any Tender.

W. KING DAVIES, Town Clerk Municipal Buildings, Port Talbot. 14th September, 1961.

BOROUGH OF CHATHAM.

KERBING AND PAVING.

CHATHAM HILL (SOUTH SIDE).

TENDERS are invited from experienced contractors for the ABOVE RECONSTRUCTION WORK, comprising approx. 1,000 lin. yd. of Kerbing, 2,300 super, yd. of Concrete Sid Contract may be inspected, and Tender Conditions Surveyor, Town Hall, Chatham, on payment of a deposit of two Guineas which will be refunded on receipt of a bona-fide Tender.

Tenders, in plain sealed envelopes endorsed "Chatham Hill Paving," must reach the undersigned by Noon on MONDAY. 2nd October, 1961.

The Corporation does not bind tiself to accept the lowest or any Tender.

R. W. E. HILL.

R. W. E. HILL. Town Clerk

Town Clerk.
Chatham.
12th September. 1961.

BOROUGH OF NEWARK - ON - TRENT. SEWERAGE AND SEWAGE DISPOSAL-STAGE 1.

COMPLETION OF CONTRACT

TENDERS are invited from experienced contractors for the CONSTRUCTION of 750yd. of 21in. dia SEWERS and Settlement Tanks at the Works, together with the Settlement Tanks at the Works. The Settlement Tanks at the Remaining Works together with the Settlement Tanks at the Remaining Works. The Settlement Tanks at the Works. The Settlement Tanks at the Settlem

J. H. M. GREAVES. Town Clerk.

Town Clerk's Office, Newark-on-Trent, 14th September, 1961.

CITY OF MANCHESTER. TENDERS invited for ALTERATIONS to PUBLIC CONVENIENCE at BARLOW MOOR ROAD, Man-

ification and Drawings from CITY ARCHITECT. Box 488, Town Hall. Tenders returnable by P.O. Box 4 OCTOBER 3 CITY OF MANCHESTER.

TENDERS invited for the DESIGN and CONSTRUCTION of REINFORCED CONCRETE FRAME and associated REINFORCED CONCRETE WORK for MANLEY PARK PRIMARY SCHOOL, WHALLEY RANGE.

NANGE.
Specification and Drawings from the CITY ARCHI-TECT. P.O. Box 488, Town Hall. Tenders returnable by OCTOBER 16th.

WILLITON RURAL DISTRICT COUNCIL. CLATWORTHY WATER SUPPLY SCHEME. CONTRACT NO. 13.

HIGH LEVEL SCHEME—BROMPTON RALPH, ELWORTHY AND CLATWORTHY.

TENDERS are invited for the FOLLOWING
CONSTRUCTIONAL WORK:
Supply and Laying of 2,132yd. of Class "C"
Asbestos-cement 4in. Water Main.
Supply and Laying of 5,859vd. of Class "C"
Asbestos-cement 3in. Water Main.
Sluice Valves. Washouts, Air Valves, Hydrants.

Sluice Valves, Washouts, Air Valves, Hydrants, etc.
Ancillary Works.
Drawings and Conditions of Contract will be available for inspection at the Office of the Engineer and Surveyor, S. E. BALCH, A.M.I.Mun.E., Council Offices, Fore Street, Williton, Taunton, Somerset, and the Form of Tender, Specification and Bill of Quantities can be obtained from the Engineer upon payment of a deposit of the Check of the William of the Check of the William of the Check of the William of the Check of the Understand of the Check of the Check of the Understand of the Check of the Understand of the Check of the Understand of the Check of the C

F. P. RISDON, Clerk.

Council Offices, Williton. 13th September, 1961.

#### CONTRACTS

DERBYSHIRE COUNTY COUNCIL. BRIDGES AND HIGHWAYS DEPARTMENT.

THE HIGHWAY ACT, 1959-PRIVATE STREET WORKS.

TENDERS are invited for LEVELLING, PAVING, KERBING, DRAINING and SURFACING the FOLLOWING PRIVATE STREET(S):

(a) Broadway, Duffield; (b) Manor Road, Chellaston; (c) Harrimans Drive, Breaston; (d) Oaktelegh, Avenue (part), Ravenuscrott, (e) Harrimans Drive, Breaston; (f) Oaktelegh, Avenue (part), Ravenuscrott, (f) Oaktelegh, and Rushciller, (f) Oaktelegh, and Rushciller, (f) Oaktelegh, (f) Oaktelegh

D. G. GILMAN, Clerk of the County Council.

1961. CITY OF STOKE - ON - TRENT. MILTON ROAD, SNEYD GREEN-WIDENING

MILTON ROAD, SNEYD GREEN—WIDENING.
TENDERS are invited for WORK on the ABOVE ROAD WIDENING SCHEME, consisting of Widening, Reconstruction and Surfacing of the Carriageway in Reconstruction and Surfacing of the Carriageway in Surfacing of the Carriageway in Gapton, Surfacing of the Carriageway in Gapton, Surfacing of Carriage and Form of Tender may be obtained, and Drawings inspected, on application to the City Engineer and Surveyor, Town Hall, Stoke-on-Trent, upon payment of a deposit of £3 which will be returned on receipt of a bona-fied Tender.

Tenders, appropriately endorsed, and priced Bills of Quantities (in separate envelopes provided) to be delivered to the undersigned by 12 Noon on WEDNESDAY, 11th October, 1961.

HARRY TAYLOR, Town Clerk.

CITY OF STOKE - ON - TRENT. HOUSING REDEVELOPMENT STREET WORKS, BURSLEM.

(A) PORT VALE STREET AND REID STREET AREA:
(B) SANT STREET AND GLOBE STREET AREA.

(B) SANT STREET AND GLOBE STREET AREA.

The CORPORATION invite TENDERS from civil engineering contractors for CARRYING OUT WORKS on the ABOVE SCHEMES, indued 5.00 and the Carriageway Surfacing and Foundation, 1,100 and, vd. of new Footway, together with Sewers, and other incidental works.

Specification, Bill of Quantities and Form of Tender may be obtained, and Drawings inspected, on application to the City Engineer and Surveyor, Town Hail, Stoke on-Trent, on payment of a deposit of £2 which will be constructed by the construction of the c

HARRY TAYLOR. Town Clerk

CITY OF NOTTINGHAM.

The CORPORATION of the City of Nottingham invite TENDERS for the CONSTRUCTION of approx. 450 lin, vd. of OUTFALL SEWERS in 91. and 1,900 sq. yd. of ROADS and Footbaths at PLEASANT ROW, Hyson Green. Nottingham, Tender documents may be obtained from the City Engineer, Guildhall, Nottingham, on payment of a deposit of Two Pounds which will be returned on render to the County of the Bill of Quantities, is to be delivered in the official envelope supplied not later thin 5 p.m. on TUESDAY, 10th October, 1961.

The Iowest or any Tender will not necessarily be accepted, and Tenders will only be considered from a conform to the working rules of the Nottingham district.

T. J. OWEN.

Guildhall, Nottingnam. September, 1961.

WOKING URBAN DISTRICT COUNCIL. BOUNDARY FENCING-OLD WOKING SEWERAGE WORKS.

TENDERS are invited for the ABOVE CONTRACT
at OLD WOKING—approx. 1,150 lin. vd. Chain Link
fencing and Three Pairs Double Leaf Gates.
Tender documents from Engineer and Surveyor on
receipt of Two Guineas deposit, refundable only on
receipt of Two Guineas deposit, refundable
refundable only on
refundable on
refu

TRUNK MAIN-LYTCHETT MATRAVERS TO

TENDERS, on a Fixed-price Basis, are invited from competent civil engineering contractors for EXCAVTING and approx. 3.400vd. of 24in. dla. SPUN-IRON PIPES, with Valves, Fittings, and other appurtenant works. All pipes and valves, etc., will be supplied by the Board.

All pipes and valves, etc., will be supplied board.

Specifications and Bill of Quantities may be obtained from the Engineer and Manager, and Plans Inspected at the Offices of the Board.

It is considered to the Board reserve the right to charge for documents not returned.

Tenders, endorsed "Tender for Trunk Main—Lytchett Maravers to One Elm," to be sent to the undersigned by MONDAY, the 23rd October, 1961.

RICHARD S. RENDLE, M.I.C.E..

Engineer and Manager.

4 Commercial Road, Parkstone, Poole, Dorset.

#### CONTRACTS

DORSET COUNTY COUNCIL

LONGHAM BRIDGE—
CONSTRUCTION OF CANTILEVERED FOOTWAY

TENDERS are invited for the CONSTRUCTION of a FOOTWAY Cantilevered Out from the Main Stru-ture of LONGHAM BRIDGE, on the POOLE/RING WOOD ROAD (A.348), at the Bournemouth Borough Boundary. Boundary,

Boundary,

The Research of the Rese

GLOUCESTERSHIRE COUNTY COUNCIL. DEMOLITION OF MASONRY AT HAW BRIDGE,

TENDERS invited from experienced contractors for DEMOLITION of MASONRY PIER and Abutments at Haw Bridge, over the River Severn (8.4218,) and Transport of Material to nearby Disposal Site, and Documents from County Surveyor, Quay Street, Gloucester, on payment of deposit of £5 made payable to Gloucestershire County Council, returnable on receipt of bona-fide Tender by FRIDAY, 27th October.

GUY H. DAVIS. Clerk of the Council.

ROROUGH OF HARROW. ERECTION OF PUBLIC CONVENIENCE.

TENDERS are invited for the ERECTION of a PUBLIC CONVENIENCE. In WOODRIDINGS CLOSE. OF A PUBLIC CONVENIENCE IN THE 
DAVID PRITCHARD, Town Clerk.

Town Clerk's Office, Harrow Weald Lodge, 92 Uxbridge Road, Harrow Weald, Harrow.

BOROUGH COUNCIL. PEMBROKE PROPOSED SURFACE WATER AND FOUL SEWERS TO SERVE NEW FACTORY SITE AT FERRY LANE, PEMBROKE DOCK.

TENDERS are invited for the CONSTRUCTION of 45 lin, 40, of 30in, 40, of 30in, 40, of 330in, 40, of 18in, dia. and 330 lin, vd. of 18in, dia. STANTON CENTRIFUGALLY SPUN CONCRETE CLASS. "B." PRESSURE PIPE SEWERS, complete with Stanton-Cornelius Flexible Joints, and 328 lin, vd. of 9in, dia. Giazed Stoneware Pipe Sewer, together with Manholes, and all other appurtenant Works. Quantities can be obtained from W. B. KAVANAGH, B.S. (Mons.), A.M.I.C.E., Borough Engineer and Surveyor, Municipal Offices, Pembroke Dock, on payment of a deposit of Five Guineas which will be refunded on the receipt of a bona-fied Tender which is not subsequently withdrawn. Drawings may also be inspected at the other subsequently withdrawn. Drawings may also be in plain sealed envelopes bearing om mark to indicate the sender, endorsed "Tender for Sewers—Factory Site, Ferry Lane," and delivered to the undersigned not later than 12 Noon on MONDAY, the 9th October, 1961.

The Council does not bind itself to accept the lowest or any Tender.

R. D. LOWLESS. Town Clerk. Town Clerk's Office, Pembroke. 13th September, 1961.

HORNCHURCH URBAN DISTRICT

REPAIRS TO ACCOMMODATION BRIDGE OVER RAILWAY BETWEEN BURNWAY AND WOODHALL CRESCENT.

WOODHALL CRESCENT.

TENDERS are invited for the ABOVE-MENTIONED
WORKS, which comprise the FOLLOWING:

(1) The Repointing of Brick Joints over most of
the Surface Area of the Bridge;

(2) Cutting Out Defective Bricks and Copings,
and Replacing with New;
The Spice of the Coping with New;
The Spice of the Coping with New;
The Spice of the Coping with New;
Offices, Billiet Lane, Hornchurch, Essex, upon the
deposit of Two Guineas which will be refunded upon
the receipt of a bona-fide Tender not subsequently
withdrawn.
The documents must be returned to the undersigned
not later than Noon on FRIDAY, 13th October, 1961,
sealed in the envelope provided, which shall bear mi
indication of the person(s) tendering.
P. L. COX,

P. L. COX, Clerk of the Council THE URBAN DISTRICT COUNCIL OF

FENCING.

TENDERS are invited for RENEWING FENCES at the FENYWALIN HOUSING ESTATE. Specifications and Forms of Tender may be obtained from the Engineer and Surveyor. Vestry Hall. Aberdare.

Tenders, in plain sealed envelopes bearing no mark or indication of the sender, but endorsed if Fencing, must reach me on or before FRIDAY, 13th October, 1961.

D. G. JAMES. Clerk of the Council.

Town Hall, Aberdare. 15th September, 1961.

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#### CONTRACTS

SELBY-YORK TRUNK ROAD, A.19. IMPROVEMENT FROM DERWENT HOUSE TO

TENDERS are invited for the IMPROVEMENT of approx. 900yd. of SINGLE CARRIAGEWAY on the ABOVE ROAD. comprising Site Clearing, Drainage, Earthworks, Kerbing, Carriageway Base, and other and Clearing and Conditions of Tender, Conditions of Contract, Specification and Bill of Quantities may be obtained from the County Surveyor, County Hall, Beverley, on payment of a deposit of Two Pounds which will be returned to any bona-fide tenderer who returns all documents supplied and whose Tender is not withdrawn. Deposits will be returned after a contract has been sealed, Cheques, etc., should be made payable to the East Riding County Council. The Drawings may be examined at the Offices of the County Surveyor at any time during customary office hours.

contract has been sealed. Cheques, etc., shows a made payable to the East Riding County Council. The Drawings may be examined at the Offices of the County Surveyor at any time during customary office hours. Tenders in a plain sealed envelope which will be Tenders by the Council, endorsed "Tender for perwent House Improvement." are to be delivered to the undersigned not later than 4 p.m. on MONDAY, 16th October, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

THOMAS STEPHENSON,

THOMAS STEPHENSON, Clerk of the County Council.

County Hall, Beverley.

Beverley, 14th September, 1961.

BOROUGH OF SOUTHGATE,

CONCRETE PALISADE AND CHAIN LINK FENCING AT VARIOUS SITES WITHIN THE BOROUGH.

TENDERS are invited from specialist firms for FENCING WORKS, as FOLLOWS:
CONTRACT NO. 1721—Provision and Erection of approx. 274 lin. yd. of Concrete Palisade

of approx. 274 lin. yd. of Concrete Pallsade
Fencing.
CONTRACT NO. 1726—Provision and Erection
of approx. 834 lin. yd. of Chain Link
Fencing in various heights should apply in
writing to the Borough Engineer and Surveyor for
the appropriate Contract documents.
Drawings and General Conditions of Contract may
be inspected at the Engineer's Office, Palmers Green,
N.13, during normal office hours.
Sealed Tenders must be returned to the undersigned
not later than 12 Noon, MONDAY, 9th Octob.

The Council do not bind themselves to accept the lowest or any Tender.

GORDON H. TAYLOR, Town Clerk.

Town Hall, Palmers Green, N.13. September, 1961.

CITY OF MANCHESTER.

TENDERS invited for the SUPPLY, DELIVERY and ERECTION of LAUNDRY MACHINERY at Walton IECTION of LAUNDRY MACHINER.

Specification from the CITY ARCHITECT, P.O.

X 488, Town Hall.

Tenders returnable by 6th OCTOBER.

I T Y OF PLYMOUTH.

IMPROVEMENTS TO 308 DWELLINGS.

The Council is prepared to receive the names of firms interested in TENDERING for the SUPPLY of FORTIC TAMKS, COPPER TUBE and FITTINGS, LAVATORY BASINS and FITTINGS, and RAINWATER PIPE.

PIPE.
Particulars can be obtained from the CITY
ENGINEER, Guildhall, Plymouth, and TENDERS are
to be submitted by WEDNESDAY, 4th October, 1961.

URBAN DISTRICT COUNCIL OF PROPOSED DEVELOPMENT OF LOCK-UP GARAGE SITE AND ERECTION OF PRECAST CONCRETE GARAGES AT OFF LAWTON STREET, BIDDULPH.

The Council invite TENDERS for the UNDERMENTIONED WORKS, and SUPPLY and ERECTION of PRECAST CONCRETE GARAGES, viz.

(a) Sit engreration Works, including Bituminous Macadam Hardstanding and Concrete Garage Bases:

(a) Sit Preparation Works, including Bituminous Macadam Hardstanding and Concrete Garage Bases:

Garage Bases:

Specifications and Tender documents may be obtained from, and General Conditions of Contract and Drawings may be inspected at the Office of the Engineer and Surveyor, Council Offices, Biddulph, upon deposit of the sum of £2 25. (cheques payable to the Biddulph Urban District Council), which sum not subsequently withdrawn.

Tenders must be delivered to the undersigned by not later than First Post on MONDAY, 16th October, 1961, in sealed envelopes bearing no mark or identification of the name of the sender, but endorsed Tender or Garages.

ROBERT W. TRACE.

ROBERT W. TRACE, Clerk of the Council.

RAMSBOTTOM URBAN DISTRICT PLANT.

The above Council invites TENDERS for the FOLLOWING EQUIPMENT:

(a) Tractor with Hydraulically Operated Bucket Loader, the bucket being capable of up-and-bucket being capable of up-and-bucket being capable of up-and-bucket loader, the bucket being capable of up-and-bucket loader, the bucket bucket loader load

F. BELLIS. Clerk of the Council.

Council Offices, Ramsbottom, Via Bury.

#### CONTRACTS

EAST RIDING OF YORKSHIRE THE COUNTY COUNCIL OF THE

CROFTER COUNTIES SCHEME.

INVERSHIN-LEDMORE-LOCHINVER ROAD ROADWORKS.

ROUTE A.837— SECTION: LEDMORE-STRONECHRUBIE FARM (APPROX. 412 MILES).

#### CONTRACT NO. 23.

The Council are prepared to receive TENDERS for the ABOVE WORKS. Drawings and Specifications, etc., may be seen on and after Tuesday. 19th September, 1961, at the Offices of the following:

The Scottish Home Department (Roads Division), 38 Asademy Street, Inverness.

W. SUTHERLAND, County Road Surveyor.

Brora.

33 Academy Street,
W. SUTHERLAND, County Road Surveyor,
Specification, Bill of Quantities, Form of Tender and
il information required may be obtained an or after
he same date at the Office of the County Road
urveyor, Brora, on depositing £15. The deposit will
e returned if a bona-ride Tender is submitted and
of subsequently withdrawn. Cheques should be made
the County Council of the County of
utherland.
An Engineer will meet contractors at 11 a.m. on
useday, 26th September, 1961, at Ledmore Junction,
o show them over the route.
Sealed Tenders, endorsed "Contract No. 23—
edmore-Strenechruble Road," must be lodged with
he undersigned not later than Noon on 17th
ICTOBER, 1961,

OCTOBER, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

(Signed) A. J. MACRAE,

County Clerk.

County Clerk's Office, Golspie. olspie. 14th September, 1961.

#### COUNTY BOROUGH OF HUDDERSFIELD.

MOOR LANE RELIEF SEWER.

MOOR LANE RELIEF SEWER.

TENDERS are invited for the CONSTRUCTION of approx. 1,500 lin. yd. of CONCRETE and S.G.W. SEWERS, varying in diameter from 12ln. to 42ln., together with R.C. Twin Box Culvert. R.C. Storn together with R.C. Twin Box Schedulers, Concrete Manholes, and other ancillary works.

Plans and Conditions may be seen, and Forms of Tender, Specification and Bills of Quantities obtained on application to A. L. PERCY, M.I.C.E., Borough Engineer and Surveyor, High Street Buildings. Huddersflex 2. S., refunded on receipt of a bona-fide of all the documents.

Sealed Tenders, in the envelope provided, are to be delivered to the undersigned not later than 10 am. on MONDAY, th 16th October, 1961.

The Corporation do not bind themselves to accept the lowest or any Tender.

HARRY BANN.

HARRY BANN. Town Clerk.

Town Hall, Huddersfield. September, 1961.

## BOROUGH OF HESTON & ISLEWORTH.

STORES AND WORKSHOP-LAMPTON PARK NURSERY, HOUNSLOW.

LAMPTON PARK NURSERY, HOUNSLOW.

TENDERS are invited for the ERECTION of MESSROOM, STORES and WORKSHOP at the ABOVE SITE.

Firms wishing to tender should make application to the Borough Engineer and Survveyor, 88 Lampton Road, Hounslow, with a deposit of £2 2s. (Two Guineas) which will be refunded on receipt of a bonafide Tender not subsequently will be refunded on receipt of a bonafide Tender not subsequently will be considered to the construction of the

D. MATHIESON. Town Clerk.

Town Hall.
Hounslow, Middx.

HALESOWEN BOROUGH COUNCIL.

ERECTION OF 253 DWELLINGS IN MAISONNETTES AND FLATS—HIGHFIELDS, HALESOWEN.

Contractors desirous of submitting a TENDER for the ABOVE PROJECT are invited to submit their names for approval by the Council to the Town Clerk, P.O. Box 14, Council House, Halesowen, not late, the 11 Noon on FRIDAY, the 28th September,

1961.
The Contract comprises Three, Four- and Five-storey Point Blocks of Load-bearing Brick Structure, and 0-storey Contract Structure, and 1-storey Contract Structure, The Tender documents will be sent out immediately after 29th September.

J. B. McCOOKE, Town Clerk.

#### CITY OF BIRMINGHAM. TO PUBLIC WORKS CONTRACTORS.

TO PUBLIC WORKS CONTRACTORS.

The PUBLIC WORKS COMMITTEE invite TENDERS on a Fixed-price Basis for Measure and Value Contracts for the FOLLOWING:

(a) The Construction of Carriageways and Footways on Calthorpe Park Redevelopment Area, Unit South Contracts of the Specifications. Bills of Quantities and Forms of Tender may be obtained on payment of £2 2s. for each Contract at the Office of SIR HERBERT I. MANZONI, City Engineer and Surveyor, Baskerville House, Civic Centre, Birmingham, 1, to whom all cheques should be made payable. The deposits will be returned on receipt of bona-fide Tenders.

Baskerville House, Civic Centre, Birmingham, 1, to whom all cheques should be made not be seen in Rom 339.

Baskerville House, Civic Centre, Birmingham, 1, to whom all cheques, enclosed in the envelopes provided for the purpose, must be sealed and delivered to the Town Clerk's Office (Room No. 8.21), Council House, Birmingham, 1, not later than 12 Noon on WEDNESDAY, 11th October, 1961, when they will be opened. Tenders received after that time will be contracted the committee do not bind themselves to accept

be opened. Tellifers of the committee do not bind themselves to accept the lowest or any Tender.
T. H. PARKINSON.
Town Clerk.

#### CONTRACTS

WEST SUSSEX COUNTY COUNCIL.

A.27 CHICHESTER BY-PASS TRUNK ROAD PROVISION OF SECOND CONCRETE CARRIAGEWAY.

Public works contractors wishing to TENDER for the ABOV: IMPROVEMENT SCHEME, involving the fully mechanised Construction of approx. 12 miles of Reinforced Concrete Carriageway and the Extension of three small Culverts, should submit their names to County Surveyor, County Hall, Chichester, not later than Noon on TUESDAY, 26th September, 1961.

County Hall, Clerk of the County Council.

County Hall, Chichester

BOROUGH OF STOCKTON - ON - TEES. PROPOSED HARROGATE 2 F.E. JUNIOR SCHOOL

PROPOSED PARTIES AT HARDWICK.

TENDERS are to be invited shortly for the ERECTION of the ABOVE SCHOOL, and firms interested in submitting a PRICE for the work should submit their names and addresses to the Borough Architect, 28 The Square, Stockton-on-Tees, as soon as possible.

The closing date for receipt of Tenders will be MONDAY, 23rd October, 1961.

HAWORTH, JOHN B. HAWORTH, Town Clerk.

Municipal Buildings, Church Road, Stockton-on-Tees.

NEWCASTLE-UNDER-LYME

ASHLEY SEWERAGE AND SEWAGE DISPOSAL. CONTRACT NO. 2.

CONTRACT NO. 2.

TENDERS are invited for the CONSTRUCTION of about 4.100 lin. vd. of GLAZED STONEWARE and SPUN-IRON PIPE SEWERS, Gin. and Similar of GLAZED STONEWARE and SPUN-IRON PIPE SEWERS, Gin. and Similar of GLAZED STONEWARE and SPUN CONTRACT OF SEWERS, Gin. and Sewage Dispatal for Chamber, Sedimentation Tanks, Storm Operation of Chamber, Sedimentation Tanks, Dosing Chamber and Bacteria Beds, Humus Tanks, Pumping Station, Sludge Lagoons, Pipework. Chambers, Road, Paths, and Incidental works, in accordance with the Drawings, Specification and Bills of Quantities prepared by the Engineers, A. H. S. WATERS AND PARTNERS, of Secilification and Bills of Quantities and Form of Ten Specification, Bills of Quantities and Form of Ten Specification, Bills of Quantities and Form of Tenders, Specification, Bills of Quantities and Form of Tenders and Tenders

receipt or a bona-not remote supplied and in the documents.

Sealed Tenders, on the form supplied and in the endorsed envelope provided, are to be delivered to me at the address below not later than Noon on 3rd NOVEMBER. 1961.

The Council do not undertake to accept the lowest or any Tender.

F. W. RAMM.

Clerk of the Newcastle-under-Lyme Rural District Council.

Council Offices, Sidmouth Avenue, The Avenue, The Avenue, Newcastle-under-Lyme, Staffs.

15th September, 1961.

CONTRACTS AVAILABLE.—Roads, Sewers, Light and Heavy Civil Engineering, Excavation and Building. No need to be short of work if you use Britain.

Britain on the North ESTIMATOR and give your tenders a charman they never had before. No tender too large or too small property of the work of the new too large or too small property. ARR, 75 Leadenhall Street, London, E.C.3. Telephone: Avenue 9676-1120.

For Contracts received too late for classification see page 1421

#### APPOINTMENTS VACANT

CARMARTHENSHIRE

APPLICATIONS are invited for the FOLLOWING
APPOINTMENTS:

(I) Roads and Bridges Department:
(a) Engineering Assistants—A.P.T. III/IV
(£\$960-£1,310 p.a.).
Applicants should be A.M.I.Mun.E.
Applicants should be A.M.I.Mun.E.
had experience of road and bridge
schemes in a County Highways Department.

nau experience of road and bridge schemes in a County Highways Department.

(b) Assistant Divisional Surveyor, Pencader—A.P.T. I/II (£645-£960 p.a.). Applicants must have had suitable training and experience in the construction of roads, he able to carry out surveys and take levels, and be competent to supervise execution of such work; the competent of supervise execution of such work; the competence of the construction of the construc

p.a.).

Applicants must 5s suitably qualified and experienced in planning or closely allied profession.

Applications for any of the above posts, glving details of age, qualifications, present appointment, and experience, with the names and addresses of two referees, to be sent to undersigned by 30th SEPTEMBER, 1961.

W. S. THOMAS.

W. S. THOMAS, Clerk of the County Council. County Hall, Carmarthe

BORDER RURAL DISTRICT COUNCIL. SENIOR ENGINEERING ASSISTANT-A.P.T. IV.

Candidates must be qualified and have experience in sewerage and sewage disposal schemes. Housing accommodation if required. Half removal expenses. Essential User car allowance. Applications, naming two referees, to undersigned by 2nd OCTOBER, 1961. C. CRANE.

7. Victoria Blace.

7 Victoria Place, Cartisle.

#### APPOINTMENTS VACANT

SUPPLEMENT

LONDON COUNTY COUNCIL. HOUSING DEPARTMENT-WORKS DIVISION.

TECHNICAL ASSISTANTS REQUIRED for superannuable positions. Up to £960, according to
experience and qualifications:

(i) Surveyors with experience in maintenance
of surveyors with experience in maintenance
of control of dilapidation schedules and
reports:

(ii) Surveyors for measuring and operation of
maintenance work, mainly painting and
decorating.

incentive scheme for bonus payments on maintenance work, mainly painting and decorating.

Write, not later than 2nd OCTOBER, giving age, details of qualifications, and experience, to DIRECTOR F HOUSING (G.1 (2.2559 9), County Hall, S.E.1. COUNTY

NORTHAMPTONSHIRE

DISTRICT SURVEYOR-GRADE A.P.T. III (£960-£1,140).

APPLICANTS for the ABOVE APPOINTMENT should have had experience in the maintenance and construction of highways, the supervision and execution of road works by direct labour and by contract, and should be conversant with the general administration of a County Highways Division.

Candidates should have passed Parr I and II of the Institution of Civil Engineers ammination or the Institution of Municipal Testamore Examination of the Institution of Municipal

gineers.

The Officer appointed will be required to provide d maintain a motor car for which he will receive travelling allowance in accordance with the Council's

The United and Market Programmer and Maintain a motor car round a travelling allowance in accordance with the Louis a travelling allowance in accordance with the Scales. Further details of the appointment, together with Forms of Application and Conditions of Service, may form of Application and Conditions of Service, may consider from the County Surveyor, County Offices, Guildhall Road, Northampton, to whom applications should be returned by MONDAY, 2nd October, 1961.

J. ALAN TURNER, Clerk of the County Council.

County Hall,

# ADMINISTRATIVE COUNTY OF

DEPUTY COUNTY ENGINEER AND SURVEYOR

52.506-52.756, according to qualifications and experience.

Candidates must have had considerable experience in the design, construction and maintenance of civil engineering works, particularly roads and biggs, and in the supervision of such works all drawing office preference will be given to candidates who have acquired administrative and technical experience in a large organisation.

Applications, giving full particulars and names and addresses of two referees, should reach the COUNTY CLERK. County Offices. Grey Friars, Leicester, not Canvassing disqualifies.

METROPOLITAN BOROUGH OF
BETHNAL GREEN.

CLERK OF WORKS REQUIRED for extensive new

CLERK OF WORKS REQUIRED for extensive new housing scheme. Salary not less than £915 p.a., rising to £1.000 p.a. Experience in supervision of pilling and structural work for erection of tall blocks of flats, and layout of estates is essential. Particulars and Application Forms obtainable from TOWN CLERK, Town Hall, Bethnal Green, £.2. Completed forms returnable by Noon, 2nd OCTOBER, 1961.

BOROUGH OF TOTTENHAM. BOROUGH ENGINEER AND SURVEYOR'S

The FOLLOWING POSITION on the Established Staff provides varied and interesting work in a municipal borough to 2000 copulation. Senior Civil Engineering Grade IV (E.1.85 to 6.1.355 p.a.). Commencing salary will be according to experience and ability.

Apolicants should hold a final professional qualification or an appropriate University degree. Five-day weeks: staff restaurant facilities; parternoval expenses relimbursed to from the Borough Engineer and Surveyor (C.). Town Hall, Tottenham. N.1S. should be returned to him not later than the 30th SEPTEMBER, 1961.

M. LINDSAY TAYLOR, Town Clerk.

#### O F B A T

CITY ENGINEER'S DEPARTMENT.

APPLICATIONS are invited for the FOLLOWING APPOINTMENTS in the City Engineer's Department:
(a) Senior Engineering Assistant—A.P.T. IV.
(b) General Engineering Assistant — A.P.T.

(c) Junior Engineering Assistant—A.P.T. I. (d) Clerk of Works (£825 x 20—£905). Senior Engineering Assistant—A.P.T. IV (£1,140-

(d) Clerk of Worns Strant—A.P.T. IV (2.1.100-2.61), 310). Senior Engineering Assistant—A.P.T. IV (2.1.100-2.61), 310). Candidates must have passed the Final Examination of the Institution of Civil Engineers or the Institution of Municipal Engineers, and have had considerable local government engineering experience since qualifying. 45:960-£1.310). Candidates should have obtained the Final Examination of the Institution of Civil Engineers or Municipal Engineers, and some local government engineering experience is necessary. Junior Engineering Assistant—A.P.T. I (645-8815).

ment engineering exassistant—A.P.T. I (1885). Illunior Engineering Assistant—A.P.T. I (1885). Candidates should be University Graduates or part qualified Civil or Municipal Engineers who wish to gain further experience to complete their qualifications. Clerk of Works (£825 x 20—£905). Candidates should have had civil engineering experience on sideration will be given to the provision of onsideration will be given to the provision of only of the provision of the

Consideration will be given to the provision of housing accommodation for appointments (a), (b) and (d).

Applications, stating age, qualifications, experience, etc., together with the names of two referees, to be forwarded to the CITY AND WATERWORKS ENGINEER, Guildhall, Bath, un or before 30th SEPTEMBER, 1961.
Guildhall.

Bath. 12th September, 1961.

#### APPOINTMENTS VACANT

#### CEYLON HIGH COMMISSION.

APPLICATIONS are invited for TWO POSTS of ASSISTANT CIVIL ENGINEERS in the Electrical Department, Ceylon, for work in connection with the Hydro-Electric Scheme, on the scale of Rs.5.160-360 and 480-13,200 p.a. for Ceylonese, and £1,750/£2,000 p.a. for others.
Particulars from CEYLON HIGH COMMISSION.
13 Hyde Park Gardens, London, W.2.
Applications, on prescribed forms, should reach this Office before 6th OCTOBER, 1961.

# BOROUGH OF SCUNTHORPE. (Population 67,000. Area 7,895 Acres. Rating Valuation £1,562,541.)

#### APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the TEMPORARY APPLICATIONS are invited for the TEMPORARY APPOINTMENT of RESIDENT ENGINEER on site works for the Council's Westcliff Area housing development. This development will ultimately cover an area include construction of roads, sewers and culverts, together with earthworks, and applicants should be experienced Civil and/or Municipal Engineers. The duration of the appointment is anticipated to be approximately two years, and the salary payable in accordance with carried to the product of th

#### BOROUGH OF DORCHESTER. WATER SUPPLY, SEWERAGE AND SEWAGE

#### APPOINTMENT OF RESIDENT ENGINEER.

APPOINTMENT OF RESIDENT ENGINEER.

RESIDENT ENGINEER REQUIRED to supervise the construction of a one million gallons reinforced concrete reservoir, and certain works of sewerage and sewage disposal.

The appointment is expected to continue for a period of 1-1½ years, subject to satisfactory service, determinable by one month's notice in writing on Conditions of Service so far as these are applicable to temporary appointments.

The salary offered, not exceeding the rate of £1,300 per annum, will be determined in accordance with qualifications and experience. The successful candidate will be required to commence duty forthwith date when disengaged, and names of three referees, to reach me by 2nd OCTOBER, 1961.

Municipal Offices,

Municipal Offices, North Square, Dorchester,

#### THE URBAN DISTRICT COUNCIL OF

#### APPOINTMENT OF HOUSING ASSISTANT.

APPOINTMENT OF HOUSING ASSISTANT.

APPLICATIONS are invited for the POST of HOUSING ASSISTANT in the Engineer and Survevor's Department, from suitably qualified or experienced persons having a thorough knowledge of building construction, maintenance and housing repairs.

The salary will be A.P.T. Grade II (£815 to £960), and housing accommodation will be provided in appropriate cases. Conditions of Appointment may be obtained from me. and applications must reach me on or before Noon on THURSDAY. Sth October: 1961.

Town Hall.

Town Hall, Aberdare. 11th September,

#### 1961 CIRENCESTER RURAL DISTRICT

#### WORKS OF SEWERAGE AND SEWAGE DISPOSAL APPOINTMENT OF TEMPORARY ASSISTANT RESIDENT ENGINEER.

APPOINTMENT OF TEMPORARY ASSISTANT RESIDENT ENGINEER.

The Council invite APPLICATIONS for the ABOVE APPOINTMENT at a salary in accordance with Grade A.P.T. III (2815-2960 p.a.) or Grade A.P.T. III (2816-2960 p.a.) or Grade A.B.T. . III (2816-2960 p.a.) or Grade A.B.T.T. III (2816-2960 p.a.) or Grade A.B.T.T. III (2816-2960 p.a.) or Grade A.B

Council Offices, 5 Dyer Street, Cirencester, Glos.

### BOLTON AND DISTRICT

APPLICATIONS are invited for the APPOINTMENT a CLERK OF WORKS for the construction of the unk Outfall Sewer—Stage II, and other connecting

Trunk Outfall Sewer—Stage II. and Sewers.

The appointment will be for about four years, and the salary is £760 x £25—£860. Sound knowledge of laying large-diameter pipes is essential, and experience in tunnel work would be an advantage.

Application forms, from me, are to be returned by 2nd OCTOBER, 1961.

PMILIP S. RENNISON.

Clerk and Solicitor.

Town Hall,

#### APPOINTMENTS VACANT

#### GAMBIA.

PUBLIC WORKS DEPARTMENT.

#### RESIDENT ENGINEER (ROADS).

Qualifications: Candidates, aged 28 to 45, must be either A.M.I.C.E. or A.M.I.Mun.E. with five years' experience on road construction. Knowledge of direct labour and contract procedures essential Duties: Supervision and control of the construction of Protectorate roads, including steel and reinforced concrete bridges and culverts. Investigation and survey, including soil tests. Preparation of plans and contract documents.

#### GAMBIA.

#### PUBLIC WORKS DEPARTMENT. EXECUTIVE ENGINEERS.

#### KENYA.

#### MINISTRY OF WORKS. ENGINEERS (ROADS).

ENGINEERS (ROADS).

Qualifications: Candidates (not over 45) should have either a University Degree, or equivalent, recognised by the Institution of Civil Engineers, and two years' practical experience; or his programment of Civil Engineers, and have had not less than five years' practical experience should include one or more of the following: (a) Location and preparation of plans and contract documents for the constitution of plans and contract documents of the contract as direct labour. Some knowledge of soil mechanics is required, and experience of the contract for two tours of 24 months in the field. Terms: On contract for two tours of 24 months in the first instance.

Apply Director of Recruitment, Department and in the field. Apply Director of Recruitment, Department of Technical Co-operation, Carlton Allowances up to \$200 per child.

Apply Director of Recruitment, Department of Technical Co-operation, Carlton House Terrace. London, S.W.1, quoting BCD112.7.709 D14, giving full name, age, and brief details of qualifications and experience.

# CRICKLADE AND WOOTTON BASSETT

#### APPOINTMENT OF GENERAL FOREMAN.

APPLICATIONS are invited from suitably qualified and experienced persons for the ABOVE APPOINT-MENT in the Engineer and Surveyor's Department. Salary—Misc. Grade VI (£760 to £825). The successful applicant will be assisted with housing accommodation if required.

Applicants must have had considerable experience in the supervision and control of a direct labour organisation engaged on housing repairs and maintaincluding pumping plants are severage disposal works. Including pumping plants are severage disposal works. Applications, endorsed "General Foreman," stating age, qualifications and experience, together with cooles of not more than three recent testimonials, should reach the undersigned by TUESDAY, 10th October. 1961.

W. J. HOSIER.

W. J. HOSIER, Clerk of the Council.

Council Offices, Manor House, Wootton Bassett, Swindon, Wilts.

## HUDDERSFIELD CORPORATION

#### APPOINTMENT OF ENGINEER AND MANAGER

The Huddersheld County Borough Council invite APPLICATIONS for the APPOINTMENT of ENGINEER AND MANAGER of the Waterworks Undertaking at a salary of £2,465 p.a., rising by three annual increments of £90 and one of £100 to £2,835 per annum.

Applicants must be qualified Civil and Water

Ambilicants must be qualified Civil and Water Engineers.

The person appointed will be required to pass a medical examination and devote the whole of his time to the services of the Council. The appointment is superannuable.

Applications to be made on the official form to be obtained from nee, and to which are attached to the council of the property of the council of the council of the property of the council of the council of the council of the council, either directly or indirectly, is prohibited and will be a disqualification.

HARRY BANN. Town Clerk.

Town Hall, Huddersfield.

#### APPOINTMENTS VACANT

BOROUGH OF WANSTEAD AND

ASSISTANT WORKS SUPERINTENDENT— A.P.T. II (£815-£960, PLUS LONDON WEIGHTING).

Applicants requested with experience in civil engineering and administration of transport. Van provided for fourcessful applicant to carry out his duties, though assistance available. Applications, on forms obtained beginner and returnable to, L. S. JEFFERY, Bording assistance available. Applications, on forms obtained beginner and Surveyor, Municipal Offices, High Road, E.18.

POPLAR BOROUGH COUNCIL.

ENGINEERING ASSISTANTS (Two) REQUIRED. Salary scale 8815-8960 p.a., plus weighting, Commencing salaries in accordance with qualifications and experience. The appointments provide ample scope for variety of civil engineering work on roads and sewers, public lighting, street furniture and installations and drawing office duties. Apply immediately no torms obtainable from BOROUGH ENGINEER AND SURVEYOR. Popular Foun Hail, Bow Road, E.J.

LEEDS REGIONAL HOSPITAL BOARD.

PROPOSED NEW GENERAL HOSPITAL AT

CLERK OF WORKS (BUILDING AND STRUCTURAL).

APPLICATIONS are invited for the APPOINTMENT of CLERK OF WORKS (Building and Structural), in connection with the construction of a new General Hospital at Huddersheld (500 beds: approx. total cost £3¹sm.). Salary £1,350 p.a.

The successful candidate will be required to work contractors' hours—all present approx. 50 hours per

The successful candinate with a contractor's hours—at present approx. 50 hours per the project is being carried out in consecutive phases under the direction of the Regional Architect, P. B. NASH, A.R.I.B.A., and MESSRS. GEORGE REW AND DUNN, Private Architects. The main building contract has now been running for ower a very and building on the site will continue for The Clerk of Works will have an Assistant Clerk of Works (Building) and a Clerk of Works (Mechanical and Electrical) to assist him in his duties. Applicants must peasure at a contract have had storey reinforced concrete framed buildings. Membership of the Institute of Clerks of Works, or the possession of the Clerk of Works Diploma of the Association of Building Technicians an advantage. Applications, stating age, qualifications, previous Applications, stating age, qualifications, previous Applications, stating age, qualifications, previous to whom reference may be made, to the SECRETARY Park Parade, Harrogate, by 7th OCTOBER, 1961.

TIMEKEEPER/SITE CLERK REQUIRED for civil engineering contracts in Lancashihre and Monmouthshire. Good prospects and permanency offered to suitable applicant. — Applications, stating full particulars, to Box V.4791, "The Contract Journal."

particulars. to Box V.4791, "The Contract Journal."

PEPRESENTATIVE REQUIRED in East Anglia for the saie of contractors' and builders' plant. Good contacts with authorities and contractors in this area an advantage. Salary and bonus. Car provided.—Full details, in strict confidence, to Mr. Sanders, DEREK CROUCH (SALES), LTD., "The Lawns," Eye, near Peterborough, Northants."

Peterborough, Northants.

QUALIFIED CIVIL ENGINEER with experience of small and medium-sized road and sewerage contracts REQUIRED for the north of England. Knowledge of estimating an advantage. Housing can be considered.—Write, stating age and salary required, to Box V.4816. "The Contract Journal."

#### PLANNING ENGINEER, 25/55

A.M.I.C.E. or equivalent, with minimum five years' site experience on heavy construction work. Duties involve planning of C.E. and building contracts at an experience of the contract of the

Presonnel Officer,
M. J. GLEESON (CONTRACTORS), LTD.,
Haredon House, London Road, North Cheam, Surrey,

SITE ENGINEERS REQUIRED for various contracts in England, chiefly North West and North East. Permanency possible for energetic men seeking progressive posts. Preferably qualified men, mobile, and with previous ali-round site experience with contractors. Good terms, holidays, etc., with early recognition of effort.—Applications in confidence to Secretary, HARBOUR AND GENERAL WORKS, LTD., TS. Stephen's House, Victoria Embankment, West-

minster, S.W.1.

NATIONAL CONTRACTORS REQUIRE ASSISTANT BUYER, with experience in abstracting materials from bills of quantities and drawings. Must passess wide knowledge of purchasing for large-scale housing projects. The position offered is an important one with good prospects. Company operated pension scheme.—Written application, giving details of agreeious experience and salary, should be sent to preven the property of the

YOUNG experienced ESTIMATOR REQUIRED for South West Lancashire. Salary commensurate with experience.—Please send full details of experience to Box V.4812, "The Contract Journal."

#### HUSSEY, EGAN AND PICKMERE, LTD.

A number of vacancies are available for SENIOR and IUNIOR ENGINEERS on contract sites in England and Wales. Permanent posts with attractive prospects. Apply, with details of education, training and experience, to

HUSSEY, EGAN AND PICKMERE, LTD., 24 Calthorpe Road, Edgbaston, Birmingham, 15. Telephone: Edgbaston 3661.

ARCHITECTURAL or CIVIL ENGINEERING ASSISTANT REQUIRED for sales/technical appointment, based on London, with company manufacturing products used in building construction and marketed broughout the world. The applicant (not necessarily salined) should be familiar with normal construction, with the control of the control

#### APPOINTMENTS VACANT

FIRST-CLASS AGENT REQUIRED for a large re-inforced concrete superstructure contract in Kent area. A good salary is offered to the right man. Bonus, etc., can be discussed during interview.—Reply in confidence, stating age, experience and previous employers, to Box 1071, c/o Murray and Phelan, Ltd., Columbia Mouse, Aldwych, W.C.2.

GEORGE COMEN SONS AND CO., LTD., REQUIRE for their Belfast branch an experienced REPREfor their Belfast branch an experienced REPREfor their Belfast branch an experienced REPREfor their Belfast branch and sales. Good prospects, pension scheme after probationary periods
pects, pension scheme after probationary periods
period to Personnel Manager, 600 Wood Lane,
London, W.12.

CIVIL ENCINEER REQUIRED for certificate and planning duties on large overseas civil engineer-ingresses. Civil engineer-ingresses of the projects with contractors. — Write full particulars of career to Box V.4682, "The Contract Journal."

#### CIVIL ENGINEERING GENERAL FOREMAN

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JOHN A. CHATTERTON.

Clerk of the County Council.

BOROUGH OF ROMFORD.

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PLAY HUTS AND TOTALE TO THE PROVISION and ERECTION of a SECTIONAL CONCRETE BUILDING measuring approx. 36ft. x 18ft. The Contract will include for Foundation Work, Drainage, Plumbing, etc. Tender documents, Total and the Contract will represent the Contract of the Contra

OF ROMFORD. BOROUGH OF ROMFOR
RESURFACING OF HAVERING ROAD (B.175).

TENDERS are invited for the RESURFACING of HAVERING ROAD from Mashiters Hill to Pettits Lane North, for a length of 450vd., comprising the Relaying of approx. 850 lin. yd. of Concrete Kerb. Laying 400 tons of Bituminous Concrete Base Course and 160 tons of Dense Bitumen Macadam Wearing Course, Re-laying of 1,200 sq. yd. of Slab Paving. Contract documents of State Paving. Contract documents of State Paving. Contract documents of State Paving. Town Hall, Romford, on deposit of a cheque for £2 2s., returnalen receipt by the TOWN CLERK of a bon-fee Bender, in the envelope provided, by 10th OCTOBER, 1961.

BOROUGH OF WOKINGHAM.

FIVE DWELLINGS-TOUTLEY COMMON. FIXED-PRICE TENDERS are invited for the CONSTRUCTION of FIVE TRADITIONAL TYPE OWELLINGS of three different types of houses for sale under the Council's scheme for public purchase

DWELLINGS on the Council's scheme for public purchase sale under the Council's scheme for public purchase Drawings. Descriptions and Bills of Quantities may be obtained from the Borough Surveyor, Town Hall, Wokingham, Berks.
All Tenders should be returned to the undersigned by First Post on MONDAY, 16th October, 1961.

L. GODDARD SMALLEY, Town Clerk.

URBAN DISTRICT COUNCIL OF

TENDERS will shortly be invited for EITHER or BOTH of the FOLLOWING WORKS:
Erection of 56 Three-bedroom Maisonnettes in Erection Blocks at Victoria Road, Elindon, Essex: and 42 Britch-built Garages in Six Blocks at Winifred Road, Pitsea, Essex.
Contractors should apply for documents to the ENGINEER AND SURVEYOR, 88 Town Square, Basildon, Essex, by 29th SEPTEMBER, with £2 2s. deposit (refundable).

FAILSWORTH URBAN DISTRICT

RESURFACING OF PLAYGROUND-HIGHER PARK, JOSEPH STREET, FAILSWORTH.

The Council invites TENDERS for the RESUR-FACING of the PLAYGROUND AREA at the ABOYE-NAMED SITE.

The work consists of Breaking up and Resurfacing approx 3,000 so. yd. of Macadam Surfacing, also the Laying of 200yd. lin. 7in. x 2in. Precast Concrete Kerbs.

the Laying of 200yd. lin. 7lin. x 2lin. Precast Collectes Kerbs.
A detailed Specification can be obtained from the Office of the Engineer and Surveyor. Town Hall, Oldham Road, Failsworth, near Manchester, upon the receipt of a deposit of a surveyor of the which will be refunded upon the receipt of a bona-fide Tender. The Tender of the property of the Collection of the C

JOHN WALTON. Clerk of the Council.

Town Hall, Fallsworth, 1961.

EAST DEVON WATER BOARD. TENDERS.

TENDERS are invited for the SUPPLY of Whitlock DINKUM SUPER MAJOR EXCAVATOR and Power shovel, with Auxiliary Equipment. Specifications and Forms of Tender may be obtained from the Chief Engineer at the undermentloned address, and Tenders, in sealed envelopes, endorsed "Dinkum Major Excavaror," should reach the undersigned not later than First Post on MONDAY, 2nd October. does not bind itself to accept the lowest or any Tender.

Clerk of the Board.

Clerk of the Board. DONALD G. BRUCE,

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FITZPATRICK & SON (CONTRACTORS), LTD.. have the following vacancies: (a) SITE CLERKS and MATERIALS CHECKER for road contracts within conton area: (b) STORES RECORD CLERK: (c) STORES MANN GER, Pilant, Machinery and civil standard and civil standard standard contoners and contoners and contoners and contoners and contoners and civil sometime plant and materials preferred): (e) ACCOUNTS CLERKS for credit control: (f) PURCHASE INVOICE CHECKER: (g) JUNIOR WAGES CLERK. (b) to (g) head office appointments, Age no obstacle. Non-contributory pension and life assurance scheme. Interviews can be arranged Saturday mornings and evenings.—Apply 455 Old Ford Road, London, E.3. Telephone: ADV 2991.

COUNTY BOROUGH OF CROYDON. NOTICE TO BUILDERS.

NOTICE TO BUILDERS.

Contractors who wish to TENDER for 35 PRAM STORES, small MAINTRNANCE STORE, 24 GARAGES and PARKING AREAS for 32 CARS to see the contract of the AUCKLAND RISE HOUSING ESTATE Could send their names to the Borough Engineer, Town Hall, Croydon, for Bills of Quantities, Closing date for Tenders, 30th OCTOBER, 1961.

TABERRER.

Town Clerk.

BOROUGH OF MORECAMBE AND

MORECAMBE ROAD TO LANCASTER ROAD.

TENDERS are invited for the CONSTRUCTION of approx. 480 lin. vd. of 18in. dia. CONCRETE SEWER. The Form of Tender, Specifications and Bill of Quantities may be inspected at the Office of the Borough Engineer and Surveyor upon payment of a deposit of £2, returnable on receipt of a bona-fide Tender not subsequently withdrawn. Becad Sewer." Selled Tenders, endorsed "Morecambe Road Sewer." for each me by 9 a.m. on the 6th OCTOBER, 1961.

C. E. BOTTOMLEY.

BOROUGH OF ENFIELD. RESURFACING OF MANOR FARM ESTATE.

The COUNCIL invites TENDERS for the ABOVE WORKS, which comprise the Laying of approx. 600 tons of 3-in. thick Bitumen Macadam Carpeting, and other ancillary works Bill of Quantities. Conditions of Tender can be obtained from the Specification, Bill of Quantities. Conditions of Tender can be obtained from the Specification, Bill of Quantities. Conditions of Tender can be obtained from the Specification, Bill of Quantities. Conditions of Tender and Surveyor, 7 Little Park Gardens, Enfeld, Middlesex, upon payment of \$2 deposit, returnable upon receipt of a bona-fide Tender and/or the return of all the documents.

In the Council of Specification of the Council o

ROROUGH OF SOUTHALL

CONTRACT NO. 988 — RECONSTRUCTION OF DORMERS WELLS LANE FROM UXBRIDGE ROAD JUNCTION TO NO. 39 DORMERS WELLS LANE.

JUNCTION TO NO. 39 DORMERS WELLS LANE.

TENDERS are invited from competent contractors for the ABOVE CONTRACT. The works will include the Clearing of Trees, Constructing approx. 1,540 sq. yd. of 6in. Reinforced Concrete Stab. Laying approx. 475 tons of Base Course and 3,700 sq. yd. of 1in. Hot Roiled Asphalt Wearing Course, Reconstructing existing Footpaths and anciliary works. Southern the Ended From the Borough Surveyor. Town Hall. Southall, on deposit of £2, returnable on receipt of a bona-fide Tender.

Tenders must be received by the undersigned, in the envelopes supplied, not later than 12 Noon THURSDAY, 12th October, 1961.

J. S. SYRETT, Town Clerk's Office,

Town Clerk's Office,
South Road,
Southall, Middlesex.

CITY OF SHEFFIELD.

TENDERS are invited for the UNDERMENTIONED SUPPLIES to all Departments of the Sheffield Corporation from November 1st. 1961, viz.—
Crockery and Cutlery.
The necessary Forms of Tender may be obtained on application to the Town Clerk, Town Hall, Sheffield, to whom completed Forms of Tender must be delivered not later than 10 a.m. on FRIDAY, 6th October, 1961. JOHN HEYS. Town Clerk.

Town Hall. Sheffield. September 21st, 1961.

KESWICK URBAN DISTRICT COUNCIL. NOTICE TO PUBLIC WORKS CONTRACTORS.

The Council invite public works contractors who wish to TENDER for the KERSING and TAM MACADAM SURFACING WORK in the CENTRAL CAR PARK, Keswick, to send in their names to the undersigned not later than 23rd SEPTEMBER, 1961. The work will include the Shaping of the Base and Laving of about 5,000 sup. yd. Tarmacadam Surfacing and the Laying of approx. 500yd. Precast Concrete Kerbs.

(Signed) A. E. HENDERSON, Clerk of the Council.

URBAN DISTRICT COUNCIL OF

CONTRACT NO. 390. PRIVATE STREET WORKS.

TENDERS are invited for the MAKING-UP of RUTHVEN AVENUE, Cheshunt. Herts. Length 170vd. Bills of Quantities, escientiation and Form of Tender was be obtained from the Office of the English of Countries inspected at, the Office of the English of SEPTEMBER, 1961. on payment of a deposit of £2. Tenders shall be returned, in the envelope provided, to the undersigned not later than 9 a.m., FRIDAY, 13th October, 1961.

The Council do not bind themselves to accept the lowest or any Tender.

G. S. NEWNHAM,

Clerk of the Council.

COUNTY BOROUGH OF DEWSBURY.

FIRE SERVICE DEPARTMENT.

TENDERS are invited for the SUPPLY of SHIRTS. COLLARS and TIES. Further particulars and Forms of Tender may be obtained from the Chief Fire Officer, Longcauseway, Dembury.

Tenders, in plain sealed envelopes endorsed "Fire Brigade Clothing." to reach the undersigned not later than the 4th OCTOBER, 1961.

A. NORMAN JAMES, Town Clerk.

Town Hall, Dewsbury, 18th September

BOROUGH OF HESTON & ISLEWORTH. UBLIC CONVENIENCE, BROADWAY, HOUNSLOW.

TENDERS are invited for the ERECTION of a PUBLIC CONVENIENCE at the ABOVE SITE. Firms wishing to tender should apply to the Borough Engineer and Surveyor. 8B Lampton Road. Hounslow. Tenders must be sealed in the envelope provided and received by me by 10 a.m. on 16th OCTOBER. 1961. The Council do not bind themselves to accept any Tender.

D. MATHIESON. Town Hall, Hounslow, Middlesex.

BOROUGH OF MAIDSTONE.

(RE-ADVERTISEMENT.)

BUILDINGS AT SEWAGE TREATMENT WORKS. WM18 CONTRACT W2.

WM18 CONTRACT W2.

FIRM-PRICE TENDERS are invited for the CONSTRUCTION of the FOLLOWING BUILDINGS at the Inlet Treatment Works at ALLINGTON and the Inlet Treatment Screen House and Grit Pumping Station.

Screen House and Grit Pumping Station.

Screen House and Grit Pumping Station.

Screen House and Grit Pumping Station.

Staff Cottages I station and February Inlet Station Inlet 
T. SCHOLES,

Town Clerk's Office, 13 Tonbridge Road, Maidstone, Kent. September, 1961.

ROROUGH OF SALE

PRIVATE STREET WORKS.

TENDERS are invited for the MAKING-UP of the FOLLOWING STREETS:
Albert Road, Brogden Grove, Brogden Terrace,
Hayfield Street, Moorland Avenue.
Specification, Bills of Quantities and Forms of Tender obtainable on payment of a deposit of £5.5s. for all five streets, or 5:1 is, for any individual street if less than five, from the Borough Engineer's Office. Town Hall, Sale, where Plans, Sections and General Conditions of Contract may be inspected during normal office hours.

Conditions of Contract may be inspected quiring normal mode, only a finite plain envelope provided, sealed and endorsed "Tender—provided, sealed and endorsed "Tender—provided, sealed and endorsed "Tender—provided, sealed and endorsed and name of mark indicating the sender. Tenders to reach the undersigned not later than 10 a.m. on MONDAY, the 16th October, 1961, The Council do not bind themselves to accept the lowest or any Tender.

BERTRAM FINCH, Town Clerk.

Town Hall,

HEBBURN URBAN DISTRICT COUNCIL. HEBBURN PONDS SITE.

ERECTION OF 102 AGED PERSONS' BUNGALOWS.

ERECTION OF 102 AGED PERSONS' BUNGALOWS.

Applications are invited from building contractors having the necessary plant and organisation to be included in a list of contractors from whom TENDERS will be invited for the ERECTION of 102 AGED PERSONS' BUNGALOWS of traditional construction Engineer and Surveyor, Council Offices, Argyle Streets, Hebburn, in writing, not later than 30th SEPTEMBER, 1961. and must be accompanied by a deposit of 53 3s., returnable upon receipt of a bona-fide Tender not subsequently withcrawn.

Tender document will be indicated.

Tenders, on the forms supplied, accompanied by a priced Bill of Quantities, are to be sent, in the envelope provided, to the undersigned.

The Council does not bind itself to accept the lowest or any Tender.

W. KINGHORN.

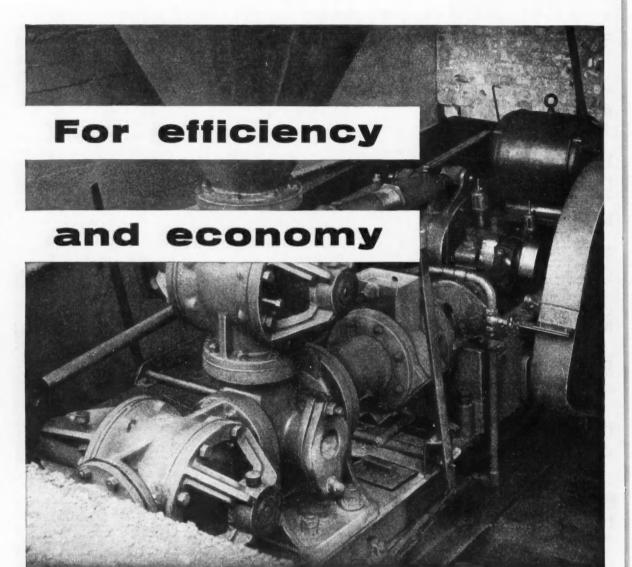
W. KINGHORN, Clerk of the Council.

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THI

# CONTRACT JOURNAL

INCORPORATING

THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

#### THE CONTRACT JOURNAL

incorporating

THE BRITISH CONSTRUCTIONAL ENGINEER

THE CONTRACTOR Established 1879

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Editor: LAWRENCE McCARTHY

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### SETBACK OVERSEAS

TWO things have highlighted construction since 1959. At home it has become the main motive force in the economy. Overseas its "exports" have been increasing faster than those of manufacturing industries. But now a five-year record of steady improvement abroad has suffered a setback. Output overseas in the year to last March rose to a record £135m. But orders slumped 25 per cent. to £98m. Thus, while in March 1960 the 60 or so contractors operating overseas had a year's work in hand, in March 1961 their order books had shrunk to less than nine month's work.

A warning about this situation was sounded last November. The chairman of the Export Group for the Constructional Industries referred to the instability and political uncertainty in parts of Africa and the Middle East which are such important markets for British contractors. Reference was also made to the lack of credit facilities, tied loans and growing competition. Without doubt all these factors have contributed to the fall in orders in the year to last March. And while credit facilities have been improved since then the cost of credit has been raised to almost prohibitive levels by the 7 per cent, bank rate.

Overseas contracting is inherently a very risky business. In the past currency changes, natural disasters and human miscalculations have exacted their toll. Today the greatest hazard lies in the political arena. Some of those countries with the largest development programmes lack stable governments. Recent experiences in Iraq illustrates the dire consequences of political instability for contractors. And having got their fingers burned it is not surprising that contractors are reluctant to chance their arm again.

Even more of the countries thirsting for developments lack finance. Sometimes the shortage of foreign currency is so acute that local resources have to be employed, slow and unmechanised though they may be. In other cases foreign contractors may be brought in, but only on the condition that they can offer credit. Britain's credit facilities are still unattractive both as regards length of credit and cost compared with those that some of our competitors are able to offer. Thus British contractors are still being asked to battle for overseas work with one hand tied behind their backs in a situation where competition is increasing on all sides.

The tied loan policy is a different problem. Both the great powers either side of the iron curtain are practising it doubtless in pursuit of their ideological battle to aid the underdeveloped countries. But Britain, although meagre with credit facilities, tends to adopt a more open-handed policy on those occasions when finance is made available. Kariba was a case in point. Much of the capital was British. But the loans were not tied. And the Italians won the major civil engineering contract.

Such a policy must be puzzling to contractors, particularly those civil engineering firms for whom work abroad constitutes an important part of turnover and offers the best hope of expansion. For no one doubts the vast potential overseas and it is interesting that British consulting engineers are holding their own as far as survey and design work is concerned. But many of the breathtaking schemes of the future are located in the Middle East or India and Pakistan where the hopes for British contractors are not high.

And yet the importance of British contractors obtaining their fair share of this future work should not be underestimated. The opportunities which overseas contracts create for further exports of heavy engineering goods is one reason. International prestige is another.

Other nations including Italy, Germany and America are pursuing aggressive policies in support of their overseas contractors. The British Government offers little more than encouragement. Admittedly the balance of payments situation affects our ability to lend more abroad. However, if the Government really wants our contractors to reach out for overseas work it must make the necessary capital available and provide attractive credit facilities. The effect of internal bank rate changes may require special arrangements.

Action is required urgently. Action to counter the energy and initiative of our competitors. For unless action is taken the fate of the construction industry overseas may be the same as that of the shipbuilding industry at home—not because of any internal failure, but through lack of imagination and courage on the part of the Government.

# STEVENAGE BY-PASS MAKES RAPID PROGRESS AFTER WINTER HALT

FOLLOWING the enforced threemonth cessation of work on the Stevenage by-pass last winter, due to exceptionally bad weather and site conditions, rapid progress is now being made by the contractors, and by the end of September the bulk of the concrete pavement will have been laid and asphalt surfacing commenced.

aspinat surfacing commenced.

The 7½-mile long by-pass, which is being built throughout to motorway design standards, will run from the "Clock" junction at Welwyn on the A.1 route, standards, will run from the "Clock" junction at Welwyn on the A.1 route, where a large roundabout is now nearing completion, as far as Coreys Mill on the A.602 between Stevenage and Hitchin. From this latter point a spur road will connect with the A.1 at Graveley, north of Stevenage, and will carry all by-pass traffic until such time as the by-pass to Baldock is constructed as a continuation from Coreys Mill. The two by-passes together will form a motorway about 13½ miles long.

Twin 24ft. carriageways will be provided with hard shoulders 10ft. wide and a 13ft. central reserve, except for a two-mile section where the central reserve, on which trees are being retained for anti-dazzle purposes, will be 28ft. wide. The maximum gradient on the route will be 1 in 16, the maximum height of embankment will be 35ft., and the deepest cutting will reach 25ft. Slopes of cuttings and embankments will vary from 1 in ½ to 2, and will be covered with 6in. of topsoil.

Carriageway Construction

#### Carriageway Construction

Construction of the carriageway will consist of a 6in. sub-base of crushed concrete or granular material beneath a 10in. base of lean mix concrete. Hot rolled asphalt, 2½in. thick, will comprise the base course, and the wearing course will be 1½in. of hot rolled asphalt. (30 per cent. stone with pre-coated granite chippings rolled in)

rolled in.)

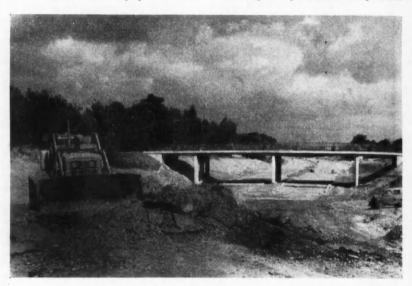
A wide variety of ground conditions had to be dealt with during construction, as

the by-pass runs from the "Clock" junction on granular material which changes gradually into clay at the north end, through some areas of chalk. On about 25 per cent. of the road, the granular material excavated on the site has been used as the sub-base material. Where clay conditions were encountered on those sections of the route which employ a crushed the route which employ

and a 6in. sub-base. These hard shoulders were constructed before the carriageway works, and were used as access routes for concrete lorries and haul roads generally.

#### Plant Employed

About 1m. cu. yd. of earthmoving was necessary, of which the majority was carried out by Caterpillar DW21 scrapers and



Work proceeding on one of the gaps near the bridges

concrete sub-base, a 6in. carpet of imported fine granular material under the crushed concrete prevented the latter from being pushed into the clay by construction traffic.

Hard shoulder construction consists of a 2in. thickness of dense tar surfacing on a lean concrete base averaging 11in. in depth

Caterpillar D9 tractors with scrapers. Hard shoulders and minor road construction was by Blaw Knox P.F. 90 pavers and a variety of vibrating rollers, and International TD20 and TD18 machines are being used for central reserves and soiling works. General loading and soil



A section of the by-pass with completed surface

shifting along the motorway are being carried out by 10RB, 977 and 944 Traxcavators.

Other plant includes a number of Caterother plant includes a number of Cater-pillar D8 and D7 units, which were em-ployed for grading and embankment con-struction, and Caterpillar Traxcavators. All the machines are owned by the contractor.

The lean concrete base was laid, in two layers, by an A.B.G. concreting train, consisting of a spreader and finisher, and progress of over 800ft. a day was achieved. As the train runs on rails laid on the 12in. by 6in. precast concrete channel blocks which form the haunches, the progress of the train depended greatly on the speed at which these marginal blocks could be laid. Additional compaction for this concrete base was given by a tandem roller working on the first layer and following the compactor.

Open type French drains have not been employed on the scheme, drainage being effected by gulleys behind the hard shoulders and in the central reserve which are connected to subsoil drains.

are connected to subsoil drains.

Steps have been taken to drain the surface of the sub-base and base at all stages of construction. Purpose made precast concrete blocks have been placed at intervals beneath the marginal strip, allowing surface water to enter drains laid laterally beneath the hard shoulder and flow into the longitudinal drains. These arrangements will later deal with any water percolating through the low stone content percolating through the low stone content asphalt surfacing. Sub-soil drains were generally excavated by Cleveland and Barber-Greene trenching machines.

On curves where one carriageway slopes towards the middle, a precast channel has been laid 3ft. from the marginal strip, with the space between formed of hard shoulder construction.

construction.

Bridge and kerb concrete has been supplied ready-mixed from a plant specially erected in the vicinity. There are three batching plants operating along the by-pass, comprising two Blaw Knox AP 100 lyd. batchers and one 2yd. plant, giving a theoretical capacity of about 2,000 cu. yd. per day. The concrete is transported to the A.B.G. train by a team of side-tipping lorries running on the hard shoulders.

#### Bridges

Of the 19 bridges on the motorway, six are overbridges, seven are underbridges and six are pedestrian or cyclist subways. The overbridges are all four-span continuous reinforced concrete slabs supported on pierced trestles and bank seats or buried skeleton abutments. To allow for movement, all square bridges have hinges at top and bettom of piers consisting of rocker. and bottom of piers, consisting of rocker bearings at the top, and a constructional hinge at the bottom. These continuous slab bridges have bush-hammered beams and abutments.

and abutments.

A variety of designs have been used for the underbridges, and a feature of these is the structure carrying the motorway over the main King's Cross-Edinburgh railway line. This bridge is a three-span skew structure of composite construction, employing Universal Beams acting with a reinforced concrete slab, shear connection being provided by Nelson studs. The 20 main span beams are of 36in. by 16½in. by 260lb. section, the weight of the heaviest, with its precast concrete casing, being about 35 tons.

Limited occupation dates were offered

being about 35 tons.

Limited occupation dates were offered by British Railways for the construction of this bridge, and had work fallen behind schedule, another occupation date would not have been available until 1962. Prefabrication techniques enabled the bridge to be erected with a minimum of delay, using a steam-driven railway crane. The beams were assembled on railway flats at Stevenage and taken down the line to the Stevenage and taken down the line to the bridge site where they were hoisted by the

Other features among these bridges occur at the Langley Mill sidings, where two superelevated and curved four-span (Concluded on next page)



ain at work. In the background vehicles are seen using the completed hard shoulders as access routes A.B.G. concreting train at work.



A typical four-span bridge crossing the by-pass, consisting of continuous reinforced concrete slabs



Asphalt surfacing in progress, using a Blaw Knox P.F.90 paver

#### EDINBURGH HEADQUARTERS FOR N.C.B. SCOTTISH DIVISION

From Our Scottish Correspondent

THE Scottish Division of the National Coal Board have now moved into their new headquarters at Lauriston Place, Tollcross, Edinburgh where, for the first time since the formation of the Board, the headquarters staff now operate in one building. Since vesting date, the Board have occupied a number of large buildings in the West End of the city. An assurance was given the town council that these scattered units would ultimately be concentrated in one modern building and the Lauriston Place project fulfils that undertaking.

The eight-storey modern block is an

taken to the full permitted height. The remaining frontages have been restricted to half this height by daylighting regulations.

#### Strictly Functional Approach

The basic plan of construction involves functional naturally lit storeys, surrounding a central hollow square courtyard. The location of the building and restrictions arising from proximity to other properties dictated to a very large extent the massing of the building while economy considerations demanded a strictly functional approach. There is virtually no attempt at decorative treatment beyond the effective and massive use of windows to counter-

sively to permit revision of space as this may be required. Standardisation of win-dow areas and clear floors and ceilings permit such rearrangement.

The work of construction began in December 1959, and cost was approximately £3 3s. 8d. per square foot of floor

#### Architects and Contractors

Architects and Contractors

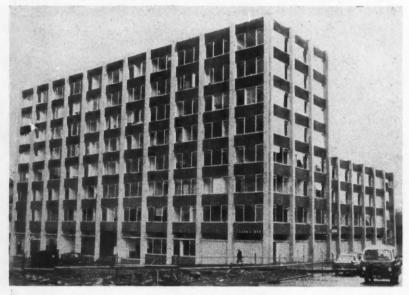
The architects responsible for the project were Rowand, Anderson, Kininmonth and Paul, Edinburgh. The main contractors were:—demolition and site levelling—John Hunter and Sons, Edinburgh; concrete piling—Pressure Piling Co., Ltd., Preston; main contractor (several works)—W. and J. R. Watson, Ltd., Edinburgh; concrete suppliers—Ready Mix, Loanhead; precast concrete structure—Scottish Construction Co., Ltd., Edinburgh; asphalt tanking and bituminous roofing—Neuchatel Asphalte Co., Ltd., Glasgow; granite facing struction Co., Ltd., Edinburgh; asphalt tanking and bituminous roofing—Neuchatel Asphalte Co., Ltd., Glasgow; granite facing slabs—George W. Bruce, Ltd., Aberdeen; metal windows—Metal Casements, Ltd., Walsall; glazing—James Thow, Ltd., Edinburgh; plaster work—D. and J. Ogilvie, Ltd., Stirling; plumber work—Mackie and Simpson, Ltd., Edinburgh, electrical installation—James Kilpatrick and Son, Ltd., Edinburgh; lift installations—A. and P. Steven, Ltd., Edinburgh; precast concrete paving slabs—J. and J. Lawrence. Ltd., Edinburgh; natural stonework—T. B. Williamson, Edinburgh; floor coverings—Rowan and Boden, Ltd., Edinburgh; A. M. Macdougal and Son, Ltd., Glasgow; internal partitions—F. Hills and Sons. Ltd., Stockton-on-Tees; ironmongery—N. F. Ramsay and Co., Ltd., Newcastle upon Tyne; acoustic ceilings—Edward Gibbon and Sons. Ltd., Glasgow; internal telephones—Reliance Telephone Co., Ltd., Glasgow; kitchen equipment—James Scott and Co., Ltd., Oldham; revolving doors—T. B. Coleman and Sons, Hove, Sussex; roller shutter doors—Pater Rax, Ltd., London, metal work—R. Thomson and Co., Ltd., Leith, painterwork—N, Nicholson and Partner, Kirkcaldy.



Durham County Education Committee have rejected a motion for setting up a direct labour organisation to carry out alterations and adaptations to schools. It was pointed out that the capital expenditure for the new department would be very great, while wages and administrative costs would also be high.

#### Cumbersome

The Committee decided that the system would become cumbersome and slow up minor repairs at present done by local tradesmen. It was also stated that recruitment of skilled staff would be very difficult.



The eight-storey building

integral part of the replanning of the Toll-cross area and the first modern building to be erected in this older part of the city. The planning involved street widening and the imposition of new standards of density, height and daylighting. The buildings now completed occupy approximately half of the site, leaving the northern half clear for future development and car parking. On the Lauriston Place frontage, where no restrictions apply, the building has been

balance the dominating concrete uprights. Because of the economy factor, stone cladding was avoided and concrete used for the external finish as well as for the internal structural members. The internal layout involves a central corridor on each floor serving offices on either hand, linked by lifts and stairways.

by lifts and stairways.

The functional approach is equally strong in the internal arrangement of individual offices. Partitions have been used exten-

Concluded from previous page) bridges will form a roundabout above the motorway and give access to the Stevenage New Town industrial area, at the same time carrying link roads over the by-pass. At the Coreys Mill junction, where the motorway will one day be extended by the Baldock By-pass, the present contract includes the construction of two reinforced concrete portal frame bridges, each with a single 75ft. span. These structures straddle the large roundabout below which temporarily forms the end of the motorway, providing what will eventually become a two-level junction in the combined Stevenage and Baldock By-passes.

Progress

#### **Progress**

Work commenced on the by-pass in June, 1960, and good progress was maintained on earthworks and preliminary work. The exceptionally wet summer of that year, however, gradually made site conditions impossible, and in December operations ceased until the end of February of this year. With the recom-

mencement in March, a vast amount of remedial work to drainage and opening up of saturated material to dry was necessary, and these preparations took up the greater part of the month.

Another effect of the halt in activities was that bridge works could not proceed as planned, and with the resumption of operations rapid progress could only be made by sacrificing the continuity of the scheme as a whole. In this way the contractors have made up a great deal of the time lost by tackling those sections of the

tractors have made up a great deal of the time lost by tackling those sections of the motorway on which work could be carried out, regardless of the particular section's place in the scheme of continuity. Following the cessation of work a sixmonth extension was granted to the contractors, but at the present rate of progress it is hoped that the scheme will be completed well within this extension period, possibly by the spring of 1962. By the end of September, the majority of the bridges are expected to be finished, when the task of completing the existing gaps around the bridges can be undertaken.

Asphalt surfacing of the carriageways should be ended by the beginning of 1962. Another problem which the contractors have had to meet has been the difficulty of recruiting local labour, due to the highly industrialised area through which the bypass runs. The majority of labour has been brought in by lorry and coach from London and the surrounding towns.

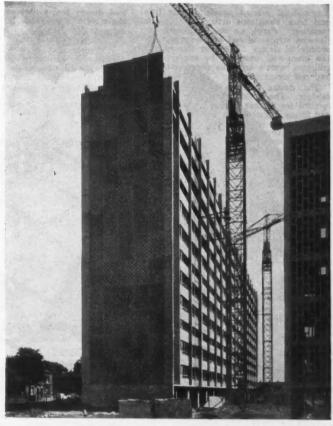
#### **Designers and Contractors**

All the works for the Stevenage By-pass have been designed and are being supervised by the staff of Hertfordshire C.C., the agent authority for the Ministry of Transport, under the direction of the county surveyor, Lt.-Col. C. H. ffolliott, B.A., M.I.C.E., M.I.Mun.E. The supervising engineer is Mr. H. G. Frost, A.M.I.C.E., A.M.I.Mun.E., and the bridge engineer is Mr. H. G. Baskett, B.Sc.

Martin Cowley, I.td. 112 Jermyn Street.

Martin Cowley, Ltd., 112 Jermyn Street, London, S.W.l, are the main contractors, whose agent is Mr. K. F. Knights, B.Sc., A.M.I.C.E. The contract figure for the scheme was £1,878,227.

# PRECAST CONCRETE CROSS-WALL CONSTRUCTION USED ON BARKING FLATS



Placing an end-wall unit on the 16-storey block

ONE of the first large-scale housing developments to be undertaken in this country on the basis of a direct contract between the local authority and the manufacturer of the precast concrete units is now under way at

Barking, Essex. It differs from the normal contract in-It differs from the normal contract in-volving precast concrete construction in that the manufacturer, in this case Con-crete, Ltd., was called in at the very earlies stage and co-operated fully on the design of the buildings with the borough archi-tect, Mr. Mathew Maybury, A.R.I.B.A. A

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contract was then negotiated for the supply

contract was then negotiated for the supply and erection of the structural units.

The general contractor's work was put out to tender in the usual way, but the successful company, Hawker Smith, Ltd., did not move on to the site until the building shells were well under way.

This system has resulted in a fast rate of construction, already a month ahead of schedule, the avoidance of site losses from bad weather and a simple method of erection. The early co-operation has also achieved considerable construction economies.

mies.
The site concerned is at "The Lintons,"

an area of 8½ acres divided by a railway line. Development thus falls into two parts, the first comprising one 16-storey block and three seven-storey blocks, two of which adjoin to form an L-shaped plan view. The second part will comprise three seven-storey blocks, and the accommodation will eventually total 384 units consisting of flats and maisonnettes.

Barking Borough Architect's Department have, during the last few years, undertaken a detailed investigation into the use of precast concrete in the construction of multi-storey flats. Their Thames View Estate, with over 2,000 dwellings, shops and public buildings, completed in 1960, was their first undertaking of this kind and proved highly successful.

The methods used on the Thames View Estate, have influenced "The Lintons" development, but whereas precast factory-made frames and floors formed an essential part of the first project, in "The Lintons" a considerable advance has been achieved through the employment throughout of load-bearing cross-wall construction, large Bison floor slabs and many other precast components.

The savings made on construction have

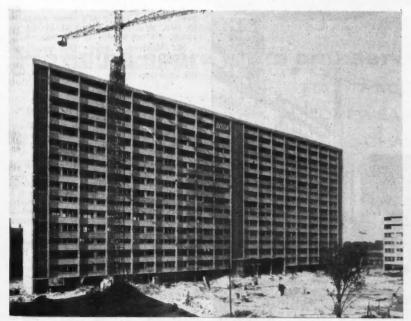
The savings made on construction have allowed a high standard of internal finishes allowed a high standard of internal finishes and equipment to be used, while the basic price of the dwellings has been kept within that laid down by the Ministry of Housing and Local Government for the building of flats. Double glazing has been installed in all living rooms and bedrooms, all floors have been soundproofed, walls provided with thermal insulation, bathrooms tiled throughout and all corridors laid with vinul tiles

vinyl tiles.

#### Three-Floor Module

Foundations for the various blocks were completed before Concrete, Ltd., came on to the site. They were carried out under a separate contract with W. and C. French, Ltd., piles being used for the 16-storey block and strip foundations for the seven-storey blocks. storey blocks.

The structural method used throughout all blocks is based on precast concrete load-bearing cross-walls and floor slabs, with



Front view of the 16-storey block

longitudinal precast panels on the front and back elevations acting as structural members. Panels on the flank walls are likewise structural and load-bearing. The architects' design allows for the ends of the cross-wall units to be expressed as columns, which are thus decorative only and not structural.

and not structural.

The design consists of a three-floor module. The ground floor in each block is used for storage, garaging and services and forms a platform for the rest of the building. Above the ground floor, floors are designed in groups of three. The seven-storey blocks seven-storey blocks have two units of the have two units of the three -floor module above ground floor, and the 16-storey block has five. The module is thus re-peated throughout the development.

The standard threefloor modular unit provides for access on provides for access on the middle floor. The lower floor is a two-bedroom flat and the middle and upper floors make up a three - bedroom mai-connette with bedthree - bedroom maisonnette with bed-rooms on the upper floor. All dwelling units run the full depth of each build-ing, from front to back and are sepaing, from front to back and are sepa-rated from the ad-joining units by the load - bearing party walls. Floors are of hollow precast con-crete slabs through

out, except those between the upper and lower floors of

between the upper and lower floors of the maisonnettes, which are of timber. This module thus permits extensive standardisation, which is also continued within the three-floor unit, as sections on one side of the central staircase are identical with those on the other, except that they are reversed.

All services, including electricity and gas, water supply, waste and soil pipes and roof drainage, are contained within a single duct through each vertical arrangement of dwellings.

The flank walls are assembled from load-

bearing precast concrete panels. Red and buff quarry facing tiles were cast in with the panels in one operation. The panels measure 8ft. 7¼in. high by 5ft. 5in. wide; those at either end are 3ft. wide.

A mosaic decoration was also applied during manufacture, in one casting operation, to the edge beams and mullions. This idea was evolved in conjunction with the Abbey Tile Co., Ltd., Barking, who suggested the method of casting the mosaic into the concrete. Apart from being

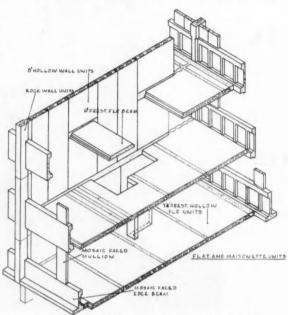


Diagram showing the structural units employed in the load-bearing cross-wall construction

decorative, both tiles and mosaic provide a finish that needs the minimum of main-tenance other than periodic washing down.

tenance other than periodic washing down. Soundproofing of the floors has been effected by glass fibre quilt between the concrete and the screed, and all party walls have been thermally insulated throughout with glass fibre mat between the concrete and the breeze lining.

The centre section of the 16-storey block straddles a roadway and in order to provide clearance for vehicles the platform function of the ground floor has been interrupted. The upper floors are therefore supported on eight V-shaped double columns tied

at the top. Vertical columns are used next to the staircase well.

Reinforced concrete grilles which semi-enclose the staircases are visual rather than structural features. They were cast in sections and hoisted into position in a sections and hoisted into position in a similar way to the structural units. On the high block this hoisting was done by Jules Weitz tower cranes, one fixed and one travelling, while on the smaller blocks most of the placing is done by Scotch derrick. All the precast units are transported to the site by low loader from the factories of Concrete, Ltd., at Hounslow and Purfleet.

Henry Hope and Sons, Ltd., were nominated as sub-contractors for the supply of all the double glazing and the fitting of metal windows.

# MORE DUAL CARRIAGEWAY ON THE A.1

Two more miles of dual carriageway on the Great North Road (A.1) will be com-pleted and opened to traffic this month.

This section, which has been built at a cost of £195,000, lies between Ellington Brook and the Alconbury By-pass in Huntingdonshire. The new highway has been built at a higher level than the old to avoid the risk of flooding from the Alconbury Brook Brook.

The work has been carried out by A. Monk and Co., Ltd., under the supervision of Huntingdonshire County Council (county surveyor—Mr. R. E. C. Dorling, B.Sc., A.M.I.C.E., A.M.I.Mun.E.).

When it is opened to traffic, there will be more than 131 miles of dual survivosaria.

be more than 131 miles of dual carriageway in use on the Great North Road between London and Newcastle upon Tyne.

#### STAFF SHORTAGE HITS KIRKCALDY HOUSING

Because of the shortage of technical staff, house-building in Kirkcaldy will be held up this year, states the burgh engi-neer, Mr. Robert Meldrum, in his annual

He says the delaying effect of the continuous shortage of staff will become apparent during the year when there will be several weeks when no houses will come off the production line. "This may underoff the production line. "This may under-line what has been said before, that technical staff vacancies should not be left unfilled over a long period," he adds.

While improvements in salary scales have reduced last year's three vacancies to two, situations offered at £1,300 per annum are not producing any response.

Mr. Meldrum suggests that some con-trol of the amount of building work under-taken throughout the county might help the situation.

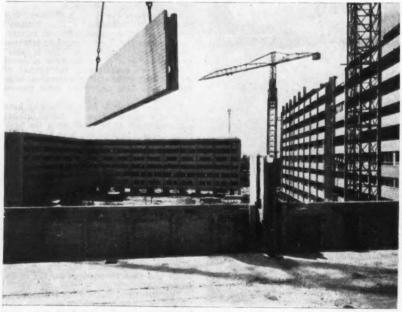
#### UNSTABLE SITE PROBLEM

Particularly unstable ground conditions posed special problems in Middlesbrough, where a liquid oxygen plant is under construction.

The site consists of extremely loose ash and sand, some 15ft. deep, with firm marl below. Instead of relying on a reinforced concrete raft or on piles, the loose soil is being compacted to 80 per cent. relative density by the speedy and economical vibroflotation process. The whole operation will take less than one week.

After compaction—being carried out by The Cementation Co., Ltd.—the load-bearing capacity will be three tons per square foot. Apart from supporting the column bases of the plant's actual structure, the foundations will take the direct weight and vibration of heavy compressors, motors and generators.

The plant is being built by Simon-arves, Ltd., for British Oxygen Engi-Carves,



General view with a mosaic slab being lowered into position

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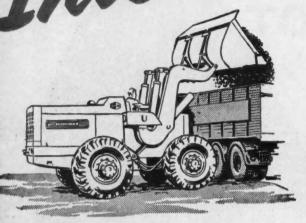
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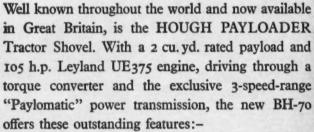
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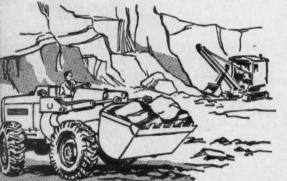
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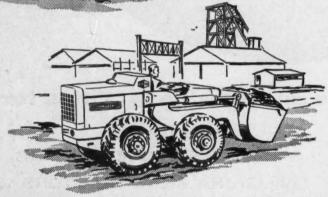






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Yet another milestone in the Bowmaker Expansion Programme is reached with the opening of this new Branch at Culverhouse Cross, Cardiff.

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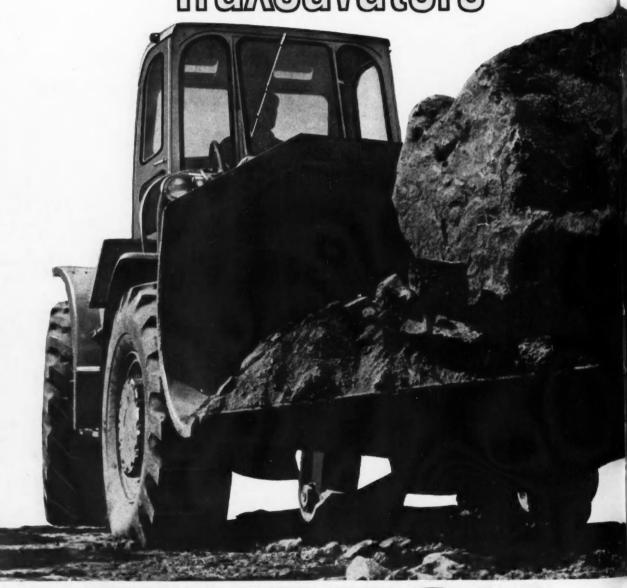
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# ARCHITECT CRITICISES STANDARD OF POST-WAR HOUSING DESIGNS

"WE have built over 3,500,000 new buildings since the war but few significantly new ideas have emerged, significantly new ideas have emerged, stated Mr. Eric Lyons, O.B.E., F.R.I.B.A., when he addressed the Town and Country Planning Summer School on "Urban Housing" at Reading University last week.

"I am not only thinking of architectural design (which might even be a matter of taste), but the perpetuation of old concepts of unit planning and layout planning, also of construction and assembly techniques," he said. "The few cases that may come he said. "The few cases that may come to mind which appear to contradict this view are the well-known few and even they generally break new ground only in one or two aspects.

"When I look at the whole sad picture I am convinced that our housing design is not representative of our architectural or technological resources. Most housing design is outside the stream of modern architectural thought."

Mr. Lyons said that it was easy to criticise the competence of a profession, but there were many reasons for the failure of our housing. He continued:

All house design is bedevilled by prejudices and snobberies and atavistic influences. People live in houses and it seems that the longer they live in them, the more convinced they are about what shape they should be; in fact, few people learn anything much after a lifetime of living in a house except, perhaps, how to adapt themselves to an outmoded and basically inconvenient rigid arrangement of rooms, spaces, equipment and so on.

#### Other Obstacles

There are other obstacles to progress in Inere are other obstacles to progress in domestic architecture. These are the Building Societies (lay-experts), who are mostly stubborn opponents of modern architecture or any design idiom that is outside the grand old traditional style of pre-war spec-building.

We have building by-laws based on 19th century health myths, sternly administered for the public good and, it seems to me for the public good and, it seems to me sometimes, administered with a most enthusiastic sternness when the aesthetics of a design are unfamiliar to the building inspector (a housing lay-expert). And, dare I add, we have the Planning Acts, which have failed to stop the appalling proliferation of spec-builders' horrors, but still manage to frustrate or damage a lot of good design that does not conform to a committee's taste, or a municipal engineer's taste or a planning officer's taste (or any combination of these). It is not surprising that our best architects do not give their best on housing, or that they do their best to escape and seek fulfilment in other fields of design, where they may be allowed to make more significant contributions. tributions.

tributions.

Compare our post-war achievements in school design with those of housing. On the one hand, new thinking by educationists and architects has produced a generally high level of architecture and some of the most adventurous and successful buildings in the country, while housing, with a few notable and much photographed exceptions, has dragged along at a safe pedestrian level—not that safe and pedestrian are synonymous nowadays, particularly on housing estates where the ticularly on housing estates where the pedestrian has generally the least consideration.

Housing is most of a town; no house is an island. The Englishman's home is his castle (a legal freedom) but his house must be regarded as part of the town, of the group, of the community. We need grouped housing not only for the sense of community that is imparted; and for the economic and sensible use of land and good town planning; but also to enable the use of modern building techniques by

repetitive design.

Our lay-experts have got to be persuaded Our lay-experts have got to be persuaded that repetition need not conjure up visions of dreary endless rows of dullness (although I would exchange some dullness for most of our spec-builders' opportunist contemporary-styled gimmicks) but let them look at the Georgian squares and streets of London with their repetitive urbanity. Visual diversity should be sought not by colour variation on walls (and roofs!) but by varying spatial relationships not by colour variation on walls (and roofs!) but by varying spatial relationships and the changing scale of squares and courts and similar arrangements. Indeed this is where there is need for the most serious study and experiment because this aspect is more important to the creation of humane environment than is the detailed

external design of buildings.

What we should be seeking to produce is a vital 20th century domestic landscape is a vital 20th century domestic landscape which would express our competence to solve the problems of the motor-car versus the pedestrian, children's play spaces, and effective recreation spaces and so on. A effective recreation spaces and so on. A move away from mere street-side layouts could create a sympathetic environment which would satisfy more needs and re-place the tawdry semi-detached image. The theme must always be compact and related buildings for urban scale not low-density sprawl. We must discard the concept that low-density equals high amenity and we must freely experiment to discover new patterns of residential amenity, in urban

None of this will, however, involve the None of this will, however, involve the public if we do not at the same time bring the unit planning closer to the realities of modern living. Most of our houses, flats (and maisonnettes) are out of date and their planning can only be called habitual; we use house plans that have grown from vague habits and customs and instead of producing room arrangements that are flexible and impressionable for the varieties of use that are required we continue to of use that are required, we continue to produce arrangements that are rigidly inconvenient to our changing ways of living. Not that people's needs are easily dis-

covered; there is no market-research in this field (and I wouldn't trust it, if there were) but here again we need to experi-ment continuously and in the process we can create considerable diversity of accom-modation within standardised (repetitive) methods. Such small experiments that I have carried out in my own work have convinced me about the differences be-tween people's prejudices and their needs. Pandering to prejudices may be easier but the satisfaction of needs is the only way we can involve the users of our buildings.

#### Space Standards

At the same time we must raise space standards and the standard of equipment and finishes to give greater convenience and comfort. Most local authority housing and comfort. Most local authority housing has hit bottom in this respect and represents an irreducible minimum. For example, the introduction of devilish foreign ideas like heating (instead of ye english fireplace) means greater comfort but it is also a valuable release for the designer who can create greater consecuency in sociological services.

out it is also a valuable release for the designer who can create greater convenience in room arrangement.

The heating (even background) of the whole dwelling can create flexibility and variety of use for the various rooms so that similar dwellings may be used in different ways by differently composed households. And in terms of tight urban building patterns with varying building heights in close proximity the elimination of belching flues is obviously necessary.

I believe that it is possible by mass-production repetitive methods to reduce the cost of building and put back into the building better value by better equipment but it seems unlikely that high enough standards will be attainable this way. We need simply to spend more money on housing. The attitude of meanness and

ruthless economy that dominates housing promotion is unfortunate; it can frustrate the skills of the architect, and mean, mini-mum dwellings with poor finish and equip-ment can inspire no love in the hearts of the users.

Nowhere does this meanness and false economy show itself more than in the handling of external spaces. I come back to the problem of layout because not only is it the most important aspect of housing environment, but it is the one that seems most neglected. I believe it is a basic necessity that buildings and space are integrated so that the various elements should combine to form a whole. It is not good enough to hand over the odd spaces to a landscape architect so that they may to a landscape architect so that they may be decorated. Landscape design should adorn and express the use of the space about buildings. Particularly in urban scale, it is the placing and relationship of the buildings that matters, so that spaces are significant and accesses convenient and so on; the soft furnishings of nature should not be used to obscure spatial relationships but to define and enhance them, which means that the spaces must be right to start with. In fact the whole complex of buildings and spaces must be conceived and designed as one "building landscape."

#### Urban Layout

Applying this principle to the layout of urban houses the small size and propinquity of the buildings may mean that front gardens cannot be left to chance and the energy or skill of the individual householder; either the fronts must be walled off to form small paved courts, or the buildings planned so as a allow public off to form small paved courts, or the buildings planned so as to allow public access to come close without loss of privacy. If back gardens are kept small (say 500 sq. ft.) it is possible with two-storey houses at density of about 50 persons p.a. to create significant common garden areas and garages for all. Such densities can be greatly increased if common garden areas are not included, or by using three-storey houses. But for densities of over say 80 persons p.a. flats are inevitable. evitable.

or over say ou persons p.a. hats are inevitable.

I do not want to appear reluctant about the use of flats; their use in urban housing must be implicit. Not only do they allow a more intensive use of land, but they can create visual diversity by the variable heights and shapes of building that are possible. Much opposition to flats stems from unhappy experience in unsatisfactory flats or converted buildings. But socially flats are desirable for the diversity of accommodation they can provide.

I would make a special plea for high density low height flat development. Three- and four-storey walk-up flats can achieve densities of 80-100 persons per acre. Above four storeys it is customary to use framed structures and of course lifts are necessary; we have logically pushed up

are necessary; we have logically pushed up the heights of the buildings to offset the increased structural and installation costs, but the baffling fact is that the greater the

High the greater the cost (per unit).

High buildings are necessary for really high densities but the whole subject of high buildings is a prickly one. They are becoming increasingly common because they can serve practical ends, but there is they can serve practical ends, but there is a danger of building high merely out of fashion. Apart from the social and economic aspects the actual shape and architectural quality of a high block can be more important in the town scene than that of a low block: a high bad building can be more of a distaster than a low one. I think that more work should be done I think that more work should be done on the use of medium-height blocks of say up to six storeys; with compact planning I believe it may be possible to achieve fairly high densities at reasonable cost. I know that such heights are unfashionable, but I am working in that direction in my old-fashioned way.

(Concluded on next page)

# John Sumner's Notebook . .

MANY of my friends are becoming in-creasingly mystified at the reluctance of so many house-building firms to register the houses they build under the scheme run by the National House-Builders Registration Council. I am equally run by the Nationa Registration Council. mystified.

mystified.

By now, I imagine, the reasons they give or the excuses they use have become a little threadbare. They certainly appear to be so in the mind of Mr. Henry Brooke, the Minister of Housing and Local Government. The other day he urged house purchasers not to be diverted from safeguarding themselves and to insist that the house they buy carried the certificate of the Council. As he pointed out, it is a certificate of sound construction, which is what the house purchaser wants. As he is making what may well be the biggest financial transaction in his life, he wants to be sure that he is not going to be let down.

Mr. Brooke obviously does not think much of those firms not registering their houses under he scheme. He said: "I am well aware that there are good houses being built which do not carry this certificate, but how is the purchaser of them to know that they are good? If, of course, he is well enough off to employ his own architect then he does not need this protecttion by ways of a certificate. But most people do not employ an architect, and just want some simple certificate test for distinguish-ing the sound from the shoddy."

Like my friends who are seeking a house Like my friends who are seeking a house to purchase, I hope that builders who are putting up good, sound houses but are still outside the scheme see the significance of the Minister's comments and lose no time in registering their houses with the N.H.B.R.C. They may be building better houses, they may be convinced that they can sell their houses without registering them but this will not continue for very much longer. They may well find their waiting lists of prospective customers fading overnight now that the N.H.B.R.C. is getting under way with an all-out fading overnight now that the N.H.B.R.C. is getting under way with an all-out publicity campaign. House purchasers will be insisting, as the Minister has advised them to do, on their house being registered. The publicity drive will further encourage them. And no amount of talking and reassurance on the part of house-builders outside the scheme is likely to make them change their minds.

#### Getting More Land

FOR some time past the house-builders and estate developers have been battling with economists, farmers and planners in order to get more land for house-building. We all know that building makes demands on the available land but most of these who have correlated but most of those who have complained about the loss of agricultural acres have used some highly misleading figures in order to strengthen their arguments against the activities of the house - building industry.

However, the balance has been redressed a little by Mr. Colin Clark, the director of the Agricultural Economics Research Institute at Oxford University. He quotes Dr. G. P. Wibberley, of Wye College, who says that the rate of loss of land to farming in England and Wales has averaged 39,000 acres a year. But Mr. Clark points out that of this loss, some 7,000 acres annually are for sports grounds (for every new school in surburban or rural areas the Ministry of Education requires some 16 acres to be reserved for this purpose). Roads and other access areas also take their toll before land for housing takes its share of the 39,000 acres a year. From

this he calculates that those who complain this he calculates that those who complain that within a few years we shall have used a large fraction of our agricultural land are very wide of the mark. He reckons that at the present rate it would take more than a thousand years.

The interesting thing about this is that while the National Farmers' Union collectively takes the view that its duty is to resist any proposals for new towns or new industrial areas, nearly all farmers who are approached are very willing to sell their land to anyone who wants a large area for building or industrial use. Indeed, as land to anyone who wants a large area for building or industrial use. Indeed, as Mr. Clark mentions, while some of the N.F.U. officials are not in sympathy with the Union's policy, it may be held that the policy is determined through resentment of any move which is likely to offer alternative employment at higher wages to labour in agricultural areas.

It is, however, in the final paragraph of his recent Sunday Times article that Mr. Clark really puts the farmers in their place on this question of the rival claims of building and agriculture. "It is not as if building and agriculture. "It is not as if we were working our agricultural land to the limit," he says. "The Dutch, who have a soil and climate very similar to ours, get on the average three times as much produce from an acre of land as we do. We could afford to lose a great deal more land to building than we have done so far and still feed a much larger population, if we gave our minds to it."

I hope that the planners at the Ministry

I hope that the planners at the Ministry will take note of this.

#### Incalculable Harm

WHILE there is growing evidence of the care which some building firms are VV care which some building firms are taking to maintain their prestige and reputation with the public the stupidity and short-sightedness of a few firms, if one can call them that, are doing a great deal more harm than their stake in the industry would seem to make possible. There is a growing tendency for final bills for work done to be grossly in excess of the estimate. This is more particularly protegable when the work is concerned with noticeable when the work is concerned with small repairs. Sometimes, of course, the extra charges involved are legitimately assessed, but too often the reverse is the

I know all about the difficulties of I know all about the difficulties of charging accurately for the precise time spent by men on jobs, and the time lost when he returns to the yard at half past three or four o'clock and it is too late to send him out again on productive work. On the other hand, an account was brought to my attention the other day in which there were extra charges for every single item, the final total being about 50 per cent. greater than the estimate. One was item, the final total being about 50 per cent. greater than the estimate. One was an extra charge for "connecting new w.c. pan to the lead soil pipe instead of to earthenware pipe as expected." The existing soil pipe certainly was lead, but it was there and the person who did the estimate should have seen it and allowed for it. As he did not, and it was his fault, the responsibility is his, or his firm's, and the cost should be borne accordingly. The harm this sort of thing does to the industry, repeated as it is thousands of times a day up and down the country, is incalculable. calculable.

When I spoke the other day to Mr. William Bryant, public relations and press officer at the N.F.B.T.E., he stated that the Federation hopes to eliminate much of this trouble through the publication shortly of standard forms and conditions of estimate for use by firms carrying out maintenance and repair work. These forms have been prepared by a National Com-

mittee specially formed to deal with the problems of the smaller firms. He also stressed, however, that householders requiring repair works to be done should go to a reputable builder in the district and not seek, as so many people do, the services of odd-job men gimcrack firms because they think it is cheaper. This sounds like good advice to me.

#### Selective Tendering

I SEE that the Ministry of Housing and Local Government has invited only six architectural firms to submit designs in competition for the new Choir School to

architectural firms to submit designs in competition for the new Choir School to be built on a site at the eastern end of St. Paul's Cathedral.

No doubt there will be many in the architectural profession who will have arguments against selecting firms of architects in this way, but it cannot be denied that an enormous amount of abortive design time will be saved by the profession as a whole. Having adopted the principle of a selected list for architectural design, I cannot now for the life of me see why the Minister still declines to give his official blessing to the principle of selective tendering for building work, as recommended in the Simon Report and countless times since. Surely he and his colleagues at the Ministry must appreciate the enormous volume of work involved in estimating for local authority contracts, the greater part of which is a considerable "invisible" addition to the cost of the nation's building programme.

tion to the cost of the nation's building programme.

If the Minister would encourage local authorities, particularly in respect of contracts for which he sanctions loans and in many cases pays subsidies, to change their practice of inviting tenders from all and sundry, he would be demonstrating his consistency in the matter of selectivity and, at the same time, be making a considerable contribution to keeping building costs down

#### (Concluded from previous page)

The other planning advantage of flat development is that the buildings can stand in public or common space; whereas with houses, the existence of rear gardens creates layout difficulties. In either case, small private gardens or none seem to satisfy an increasing number of people when the order of gardens than of garden. who are fonder of gardens than of gardening. I am fairly certain that this would apply to the majority of people, if they had the choice—I mean the choice of living in and enjoying the use of spacious, well-maintained, well - landscaped common gardens.

#### Conclusion

Conclusion

If what I said earlier about the need for group-housing is to be pursued, then it is obvious that it is only the local authorities and the spec-builders who can supply our needs; there are not many to do so yet.

I have talked about the need for experiment in unit planning and site planning and the need for integrating buildings and spaces and the critical problem of maintenance of spaces. I have suggested that density is not a direct guide to environment and that anyhow it is fallacious to regard low-density as necessarily creating high amenity.

ment and that anylow it is failactious to regard low-density as necessarily creating high amenity.

The note on which I want to leave you is that which I mentioned first; the problem of urban renewal. The retreat from the city goes on and this means also the rejection of urban values. The alternative to this retreat would be to make our cities work and to reclaim the bad lands, the twilight areas, and renew them. This could be our biggest housing opportunity and we must face up to the difficulties in renewing these areas with their multiplicity of small ownerships which militate against effective large-scale redevelopment.

The planning challenge of our time is urban renewal and this must not mean only renewing the city centres and making the roads work. We need to reinterpret the old values of urban life and above all we need new urban housing to make our towns worth living in again.

we need new urban housing to make our towns worth living in again.

#### BUILDING RESEARCH STATION DIGEST No. 14

# Concrete Mix Proportioning and Control

THE quality of concrete, i.e. its suitability for a particular purpose, depends largely on its strength and uniformity. Digest 13 explained the need for precision in the specification of concrete mixes and close control of the work on the site, to avoid wide varia-tions in strength and wasteful use of cement while maintaining a suitable degree of workability. In this Digest the factors influencing strength and workability are con-

sidered in relation to mix design, and methods of site control are described.

## Strength and Workability

Since there is no reliable direct means reliable direct means for determining the quality of concrete during construction, the accepted method the accepted method is to test properly made cubes of the material at regular intervals to see that the strength is maintained at a reasonably uniform level above the specified distinction. minimum.

minimum.

The workability of the wet mix is difficult to define and to measure, but for field use an adequate measure is provided by the well-known slump test. (Examples of slumps correspondof slumps correspond-

of slumps corresponding to different de-grees of workability will be found in Table 1.) A more exact but more complex test for workability is the compacting factor test to work which is used extensively in concrete laboratories for research and for mix design. Both tests are described in BS.1881, "Methods of testing concrete."

In the following review of the various factors that influence the workability of the mix and the strength of the resulting concrete, it will be noticed that many of them lend themselves to control while the work is in progress.

#### Age and Curing Conditions

Under normal conditions, the strength Under normal conditions, the strength of concrete increases with age, the increase being greater for water storage than for air storage, as shown in Table 2. It is usual to refer to the strength of concrete at specific ages, 7 days and 28 days being most frequently used. Since the strength of concrete increases with storage temperature, test specimens are stored in water maintained within a range of 58-66 deg. F., to ensure that the potential quality of the concrete in the work is assessed free from the effects of major variations of temperature at the site (Clause 601 of CP.114).

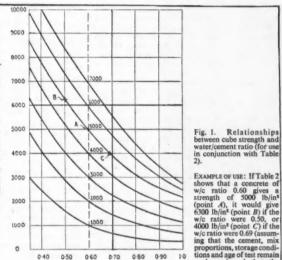
#### Compaction

To attain its potential strength, concrete must be fully compacted; for example, an incompletely compacted concrete containing 5 per cent. of air voids is about 30 per cent. weaker than when fully compacted. Mix design and quality control are based on the strength of fully compacted cubes and on the necessary assumption that the concrete in the construction, also, is fully concrete in the construction, also, is fully compacted.

#### Quality of the Cement

Cements of British manufacture usually meet the minimum strength requirements of BS.12 without difficulty and they all tend to reach broadly the same strength at ages of six months or a year; at earlier

ages, however, the variations in strength above the minimum are considerable, and this contributes to the overall variation in the strength of concrete at 28 days. For example, even under strictly controlled laboratory conditions, the cube strength at 28 days of water-stored concrete with mix proportions of 1:2:4 by weight made from 16 batches of cement over a two-year period was found to vary between 4,000lb./in.<sup>2</sup> and 6,300lb./in.<sup>2</sup>. Generally when concrete mixes are being designed,



EXAMPLE OF USE: IT Table 2 shows that a concrete of w/c ratio 0.60 gives a strength of 5000 lb/in³ (point A), it would give 6300 lb/in³ (point B) if the w/c ratio were 0.50, or 4000 lb/in³ (point C) if the w/c ratio were 0.69 (assuming that the cement, mix proportions, storage conditions and age of test remain unchanged and that the concrete is fully compacted). EXAMPLE OF USE: If Table 2

the strength of the cement to be used is not known; the values given in Table 2, however, may be regarded as typical for concretes of the compositions stated.

#### **Aggregate Properties**

WATER / CEMENT RATIO BY WEIGHT

The general properties required of coarse and fine aggregates from natural sources are specified in BS.882. Even within the prescribed limits, the variations among different aggregates are sufficient to

affect the strength of concrete, and in some exceptional circumstances it may be necessary to take account of the inherent characteristics of particular types of rock; for example, when concrete of high strength (over 6,000lb./in.²) is required, a hard crushed aggregate is preferable to a flint gravel aggregate.

Much more important, however, are the effects of the size, grading, surface characteristics and water absorption of the aggregates, since these variables all affect the workability of concrete and so, indirectly, its strength. For instance, in using aggregates of a larger maximum size or smoother and more rounded particles, less water is needed to produce a given workability and this in turn gives a stronger concrete. The grading of both the fine and the coarse aggregate is a major factor to be taken into account not only in mix design but also in control, since any change in the grading or other properties of the aggregate while the work is in progress will affect both workability and strength. For further discussion of this aspect, see Digest 108 (first series). Much more important, however, are the

#### Mix Proportions

The relative amounts of cement, aggre-The relative amounts of cement, aggregate and water in a concrete mix govern the workability of concrete and its eventual strength and durability. It is common practice to define the amounts in the form of two ratios, i.e. the cement/aggregate ratio and the water/cement ratio, both relating to the proportions by weight of the materials in question.\*

For practical purposes, the water/cement ratio is the most important factor influencing the strength of concrete and it is therefore the most useful starting point in designing a concrete mix for a given strength, as described in the next section. The series of curves in Fig. 1 is based on a large number of tests, on different mixes of concrete made with river sand and of concrete made with river sand and gravel and different Portland cements, at

\*There is often discussion as to whether the weight of water for the purpose of calculating the water/cement ratio should include the weight of water absorbed by the aggregates. In this Digest the water/cement ratio relates to the total weight of water in the mix, including that of water absorbed by the aggregates.

CHARACTERISTICS OF CONCRETE MIXES

Degree of workability	Slump (in.)	Suitable use	Water/cement ratio	Cement/aggregate ratio (by weight) for }-in. maximum sized aggregate		
				Rounded	Irregular	Angular
Very low	0 to 1	Vibrated concrete in roads and large sections.	0.4 0.5 0.6 0.7	1:6 1:8	1: 41 1: 64 1: 74	1:4 1:51 1:7
Low	1 to 2	Mass concrete foundations without vib- ration. Simple reinforced sections with vibration.	0.4 0.5 0.6 0.7	1:5 1:7 1:8½	1:4 1:5½ 1:7 1:8	1:3½ 1:5 1:6 1:7
Medium	2 to 4	Normal reinforced work without vib- ration. Heavily reinforced sections with vibration.	0.4 0.5 0.6 0.7	1:4 1:5½ 1:7	1:3½ 1:5 1:6 1:7	1:3 1:4 1:5 1:6
High	4 to 7	Sections with congested reinforcement. Not normally suitable for vibration.	0.4 0.5 0.6 0.7	1: 3½ 1: 5 1: 6½ 1: 7½	1:3 1:4 1:5 1:6	1:3 1:4 1:44 1:5}

TYPICAL STRENGTH DEVELOPMENT OF CONCRETE 1: 6 BY WEIGHT, W/C RATIO 0.60

Age	Average crushing strength (lb/in*)					
Age at test	Ordinary Portland convent		Rapid-hardening Portland cement			
	Storage— air 64°F, 65% R.H.	Storage- water	Storage— air 64°F, 65% R.H.	Storage water		
1 day 3 days 7 days 28 days 3 months	800 2200 3200 4500 5400	2200 3300 5000 6400	1000 2500 3500 4800 5600	2500 3600 5400 6600		

various water/cement ratios and tested at various water/cement ratios and tested a different ages. Each curve shows, for any concrete that gives a known strength (1,000, 2,000, 3,000, . . . , lb./in.²) at a water/cement ratio of 0.60, what strength could be expected if the water/cement ratio were increased or decreased without the increased or decreased without the increased or decreased without

attering the other conditions. Examples are shown on Fig. 1.

Typical strengths of 1:6 river gravel concrete at a water/cement ratio of 0.60 are shown at various ages of test in Table 2, for use in conjunction with Fig. 1.

The relationship between water/cement

2, for use in conjunction with Fig. I.

The relationship between water/cement ratio and strength indicated by the curves holds good over most of the normal range of gravel concrete mixes, although some deviation from the expected strength may occur between two mixes of widely differing workability, or with mixes of very low water/cement ratio. With other aggregates, such as crushed rock, the strength at a given age and water/cement ratio may differ because of the different absorption and other characteristics of the and other characteristics of the aggregate.

aggregate.

For any given water/cement ratio (fixed according to the strength required), the workability of the mix will depend on the proportion of cement to aggregate. The richer the mix, the more workable it is; for example, at 0.5 water/cement ratio, a 1:4 mix will be far more workable than a

For a different water/cement ratio, but the same workability, again the cement/ aggregate ratio must be varied; as the water/cement ratio is increased, more aggregate is required to maintain the workability constant, i.e. the mixes become leaner as illustrated in Table 1. Thus, for leaner as illustrated in Table 1. Thus, for two mixes of the same workability, the richer mix will be the stronger, not simply because of its higher cement content but because it has a lower water/cement ratio. Conversely, for mixes of the same water/cement ratio, the richer mix will be the more workable but (provided full compaction is possible) the strength will not vary greatly. Hence, with a fixed water/cement ratio, there is no advantage in using more greatly. Hence, with a fixed water/cement ratio, there is no advantage in using more cement than is needed to give the required workability.

(At very low water/cement ratios the

leaner mixes, although considerably less workable, will be even stronger than the richer ones. With concrete normally used richer ones. With concrete normany used in construction this effect on strength need not be considered in mix design, but is important in the design of mixes for very high strength concrete using very low water/cement ratios.)

#### Mix Design

The minimum strength specified for concrete for any particular purpose will depend on the permissible stresses indidepend on the permissible stresses indi-cated by structural considerations. In designing a mix to meet the specification there are four questions to be decided: the average strength to be aimed at, the water/cement ratio, the cement/aggregate ratio, and the proportion of fine to coarse aggregate.

#### Average Strength

The importance of choosing an average strength sufficient to ensure that not more than, say, 1 in 100 test results will fall below the specified minimum strength was

than, say, 1 in 100 test results will fall below the specified minimum strength was explained in Digest 13; it was also shown how this average varies according to the site control exercised. In designing a mix, therefore, the average strength must be chosen according to the level of control to be expected, or known from previous experience. In the absence of previous experience, the values given in Digest 13, Table 3, provide a guide to the average strength needed in different circumstances.

The water/cement ratio required in order to obtain this average strength can be found by using Fig. 1 in conjunction with Table 2. Supposing, for example, that ordinary Portland cement is to be used and that the nature of the job calls for an average strength (water storage) of 4,000lb./in.² at 28 days age; Table 2 shows that if a water/cement ratio of 0.60 were adopted, the concrete would give a 28 days strength of 5,000lb./in.². From the "5,000" curve in Fig. 1, it can then be found that the water/cement ratio corresponding to the requisite 4,000lb./in.² is 0.69.

It should be noted that, if the concrete

It should be noted that, if the concrete is exposed to the weather, it may be necessary to adopt a lower water/cement ratio than that required for strength alone,

since the water/cement ratio has a major influence on durability. Table 3 gives the maximum values recommended for various degrees of exposure, for both thin sections and mass concrete.

For concrete exposed to chemical attack, the special precautions mentioned Digest 5 (second series) are necessary.

#### Cement/Aggregate Ratio

The proportion of cement to aggregate in the mix is chosen mainly with a view to obtaining the workability required for the job, having regard to the type and the the job, having regard to the type and the maximum size of the aggregates available. Table I shows for three different types of aggregate of \$\frac{1}{2}\$ in. maximum size how the mix proportions can be varied to suit the job according to the water/cement ratio selected and the workability required. Most natural sands and gravels fall into the "irregular" category, whilst the category "angular" includes quarried aggregates such as limestone, whinstone and granite aggregates. Rounded aggregates are rather uncommon. For a given workability these cement/aggregate ratios should be increased for \$\frac{1}{2}\$ in. maximum size aggregate and reduced for \$1\frac{1}{2}\$ in. maximum size aggregate. For example, a \$1.6\$ mix with \$\frac{1}{4}\$ in. aggregate would be changed to \$1.5\$ and a \$1.7\$ mixes for \$\frac{1}{4}\$ in. aggregates respectively. aggregates respectively.

#### Fine/Coarse Aggregate Ratio

Lastly, the proportion of fine to coarse aggregate is determined. This depends on the grading and on other properties of the aggregates and on the cement/aggregate ratio; leaner mixes generally require a higher proportion of fines to prevent harshness and the tendency to segregation. The classification of fine aggregates into the four grading zones in BS.882, "Concrete aggregates from natural sources," is

the four grading zones in BS.882, "Concrete aggregates from natural sources," is of help; as the material used becomes finer i.e., in changing from a zone 1 material to a zone 4 material, so the proportion of fine aggregate in the mix should be reduced. For example, in a 1:6 mix using ½in. maximum sized river gravel and sand, fine/coarse ratios of 1:1½, 1:2, 1:3, and 1:3½ would be suitable for sands in grading zones 1, 2, 3 and 4 respectively.

With the mix proportions determined as above in terms of water/cement ratio, cement/aggregate ratio and fine/coarse ratio, batch weights can be calculated and trial mixes prepared. Because of the many variables involved among different aggregates and cements, the trial mixes may not meet precisely the requirements for strength and workability, but minor adjustments of the mix proportions are usually sufficient to give the required properties. The method outlined above is suggested as one rational approach to mix design, offering many advantages over the specification of nominal mixes with little or no thought of the materials to be used.

thought of the materials to be Details of other methods will be in published works on concrete.

#### Quality Control on the Site

Quality Control on the Site

The methods of quality control to be described introduce the precautions needed to ensure that as nearly as possible the mix as designed will be reproduced throughout the work on the site and give the strength required with a minimum of variation from batch to batch. This is mainly a question of avoiding changes in the proportions and the properties of the materials used in successive mixes and keeping the workability reasonably constant.

#### Cement

There is little that the user can do about variations in the quality of the cement apart from seeing that it is properly stored under dry conditions to prevent deterioration. On major jobs, however, the variability may be reduced by obtaining a bulk supply from one works.

#### Aggregates

The property of the aggregates most likely to vary on a job is grading. It is preferable to obtain the aggregates from a single source and in separate sizes; thus, (Concluded on page 1434)

Table 3 MAXIMUM W/C RATIOS FOR VARIOUS CONDITIONS

Exposure	Maximum water/cement ratio		
LAPOSUE	Thin sections	Mass concrete	
Regular wetting and drying	0.45	0.55	
Normal Severe climate	0.50	0.60	
exposure J Temperate climate	0.55	0.65	
Continuously under water	0.55	0.65	

ADJUSTMENT OF BATCH WEIGHTS FOR WET AGGREGATES Specified mix-1:2:4 by weight, w/c ratio 0.60

Material	Batch weights based on dry aggregates lb	Water content of aggregate		Batch weights based on wet aggregates	
Material		%	lb	lb	
Cement	200	_	_	200	
Sand	400	6	24	424	
Gravel	800	2	16	816	
Water	120	-	<del>-</del> 40	added water=120 - 40 =80	

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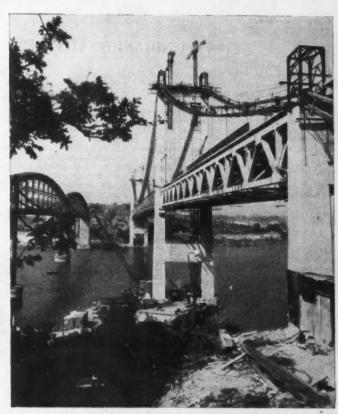
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# TAMAR SUSPENSION BRIDGE NEARING COMPLETION

First Road Traffic To Cross Soon



LTHOUGH the official opening will not A take place until next spring, it is expected that the first road traffic will cross the new Tamar Bridge linking Devon and Cornwall within the next two months. The protographs on this page illustrate the progress which has been made since work commenced in Aug, 1959, alongside Brunel's famous railway bridge.

The bridge stands 134ft. above high water, and has a central span of 1,100ft. and side spans of 374ft. It is of steel and concrete construction and will carry three

concrete construction and will carry three

carriageways and two footpaths on its 33ft.

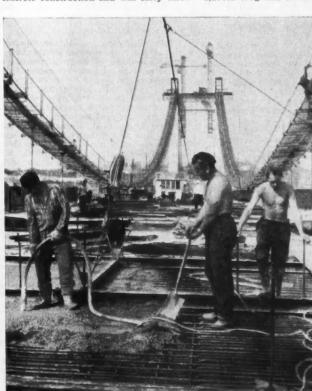
carriageways and two footpaths on its 33.1. width.

All the towers are of reinforced concrete. The main towers comprise hollow squares 2ft. thick with rounded external corners, tapering from base to top, and 240ft. high, the square being 14ft. at the base and 9ft. at the top.

Nearly 4,500 miles of wire, weighing 800 tons, have gone into the making of the suspension cables. These comprise 62 separate steel wire ropes each about 2,200ft. long and 2.37in. in diameter.

The bridge has been designed for the Tamar Bridge Joint Committee by Mott, Hay and Anderson, London, S.W.1. The main contractors are the Cleveland Bridge and Engineering Co., Ltd., Darlington.

As reported in *The Contract Journal*, June 25, 1959, the accepted tender amounted to £1,346,099, the Joint Committee's estimate for the total scheme, including land acquisition and relocation of population and industry, being £2,570,000. The contract contained a rise-and-fall clause. clause.





#### Correspondence

#### THAT UNBIASED ADVICE

To the Editor of "The Contract Journal," Sir,—I was much interested in the leading article in the August 17 issue of the Journal.

There is no doubt of the correctness of your statement that local authorities are less inclined to use the services of private architects and independent consulting engineers and to my mind the reason for this

is quite obvious.

For many local authorities a new project of any reasonable size may be the only one of its type they will be called upon to undertake for a number of years and it is therefore a natural aspiration that they would wish to have the credit for any such

works.

I have felt for a very long time that too large a proportion of work is being undertaken by too few architects and not sufficient circulated among the younger members of the profession, which undoubtedly would bring forth fresh ideas and give a greater measure of encouragement to the towner generation. You may

and give a greater measure of encouragement to the younger generation. You may have observed there has been some correspondence on this subject recently in "The Daily Telegraph."

Referring to your remarks on the package deal, which, of course, is a challenge to the profession, this is erroneously claimed as being new. Over 30 years ago, when I was working in the contracting business, we were then doing package deals of this nature. Having had experience of this method of working, it is by far the most expensive way of carrying out any type of building or civil engineering work. There are occasions when the question

There are occasions when the question of expense is not of primary importance and speed is the essence of the contract. For this to be effective the client must be quite definite at the outset as to his re-quirements because this is generally the greatest delaying factor on any project. It must, however, be his prerogative to make changes during the progress of the project, especially if they are ultimately

of economic advantage. It is here the professional adviser, be he architect or engineer, is in the better position to be able to meet the client's wishes without him receiving enhanced claims, which is invariably the case in the package deal.

You make mention of a contractor operating the package deal and producing outline scheme and budget estimate in about four weeks and a firm estimate in six to seven weeks. What is this for? Even for a road or structures of repetitive dimensions this would, in my opinion, be a near miracle, especially in view of the time usually involved in obtaining approvals from the planning and other authorities, which is the second biggest delaying factor in any large scheme.

I smile at the claim "provided the speci-

in any large scheme.

I smile at the claim "provided the specification remains unaltered by the client there will be no variations at the end of the contract." After 40 years experience on all types of structures, I have never yet been associated with a job that has not had the specification altered in one form or another.

or another.

Let us face the fact, the most successful structures of any magnitude are those where the client has known in advance precisely what he requires, where he has employed professional advisers skilled and experienced in their job and where there has been an enlightened public authority.

Let me also point out that the pro-fessional advisers job is twofold (1) to see that the client gets full value for his money and (2) to see that the contractor is paid fairly for the work he has undertaken. The fee he is paid for this service is clearly set forth, whereas in the package deal no one knows, least of all the client, the amount included for the design.

Yours, etc., FREDERICK S. SNOW.

Ross House, 144 Southwark Street, London, S.E.1.

#### £253,000 WATER SCHEME **Cubitts Awarded Contract**

CONTRACT valued at £253,000 has A been awarded to Holland & Hannen and Cubitts (Great Britain), Ltd., by the East Surrey Water Company for building a raw water pumphouse and water treatment plant at Leatherhead.

The output of 10 artesian springs in Fetcham Mill Pond, Leatherhead, some 3m. gallons of water a day, is to be harnessed and fed into the Leatherhead water system.

The springs will be individually boxed in by cofferdams, made of steel sheet piling, and their flow piped to the new raw water pumphouse, built next to the pond.

The water will be pumped up Hawks Hill

to a new treatment plant which Cubitts will build partly into the chalk hillside adjacent to the water company's existing Elmer Works.

A five-span barrel vault roof, covering the whole treatment works, will be built first to allow the various treatment tanks, operating rooms and filters to be installed under cover.

Piping the raw water from the pump-house to the treatment works is the only construction work not being carried out by Cubitts. This is being done by the

Engineer to the East Surrey Water Company is Mr. G. M. Swales, B.Eng., M.I.C.E., M.I.W.E., London Road, Redhill,

#### SURVEYORS ASSOCIATIONS LIAISON

After discussions over a period of some months the representatives of the Building Surveyors Institute, The Faculty of Architects and Surveyors, The Institute of Quantity Surveyors, and The Guild of Surveyors met on Monday, September 11. It was resolved unanimously to meet from time to time to discuss and liaise on matters of common interest, as applicable to the building industry and surveying profession.

(Concluded from page 1432) aggregate of ¼in, maximum size should be obtained in ¾in. to ¾in., ¼in. to ¼in., and n¾in. down sizes. It is not usual to divide the n¾in. down material into separate sizes; sometimes two grades of sand are used and combined to obtain a particular grading, but this adds to the difficulty of site control. All-in aggregates should not be used in controlled work since their grading is too variable. The moisture content of the aggregates is certain to vary and this is dealt with below.

The aggregates should be handled and stored in such a way that sources of variation are minimised and that new sources are not introduced. For example, aggregates will segregate if allowed to roll down high conical stock piles; the stock

down high conical stock piles; the stock piles should be spread out on a hard surface, the different sizes should be separated by solid walls, and the bottom foot or so should be left to act as a drainage layer.

#### Measurement of the Materials

Strict maintenance of the mix propor-tions selected from the trial mixes is most important, but unfortunately this often receives insufficient attention. The only really accurate method is to weigh the materials for each batch of concrete. Cement should always be weighed, or the size of the batch of concrete should be chosen so that a whole number of lcwt. The

bags of cement is used in each batch. The use of half or part bags should not be allowed.

The weights of materials for each batch, determined from the trial mixes, refer to dry aggregates but since, on the site, aggregates are usually wet, allowance must be made for the water in the aggregates in measuring both them and the mixing water; if this is not done, the mix is liable to be slightly richer, somewhat under-sanded, and much wetter and weaker than the intended mix.

If the aggregates are not measured by weight but by volume, there is the addi-tional complication that allowance must be made for the "bulking" of the sand (fine aggregate or sand occupies a much larger volume when moist than it does in the dry state—see Digest 44, first series); failure to do so would impair the mix still further.

To make the first batch of concrete accurately with wet aggregates, the water content of the aggregates must first be determined\* and the batch weights adjusted accordingly. Table 4 shows an example of how the adjustment is made.

adjusted accordingly. Table 4 shows an example of how the adjustment is made. Having made certain that the initial batches are made with the correct water/cement ratio, the moisture content of the aggregates must be checked periodically, but it is obviously impracticable to do this for each batch. Provided that the quantities of cement and aggregate for each batch are accurately measured, and there is little or no change in the moisture content of the aggregates, it is permissible to adjust the added water so that it gives the same workability (slump) as the first batch. If, however, the water content of the aggregate changes largely, e.g. by exposure to rain, it should be redetermined and a fresh adjustment made in the batch weights. It must be emphasised that if the mix proportions are not accurately measured, judging the added water from \*There are various methods for determining

\*There are various methods for determining the moisture content of aggregates—ranging from the direct weighing of samples before and after oven drying, to the use of commercial moisture meters. the workability of the mix will produce large variations in strength.

#### Supervision and Testing

Supervision and Testing

To obtain good control, the supervisor of the batching process should have a sound knowledge of the properties of concrete and the factors influencing them. The aggregates should be tested periodically to check their grading and moisture content and the workability of the mixes should be regularly checked by slump tests. Concrete cubes should be taken daily to determine the strength of the concrete, and more frequently at the commencement of a contract so as to obtain early data on the behaviour of the mix. The age at which the cubes are to be tested is a matter for specification; normally it is 28 days, but action may be taken on 7-day results. 7-day results.

All mechanical plant should be maintained in a clean serviceable condition and the accuracy of all weigh-batching equipment should be checked at least once a

week.

The quality of the concrete structure depends not only on attention to the points mentioned in this Digest but on good workmanship at all stages. The supervisor should therefore be able to instruct the concreting gang in other aspects of concreting, such as cleanliness and positioning of the reinforcement; cleanliness and watertightness of the formwork; making construction joints; and care in the transport, thorough compaction and good curing of the concrete. of the concrete.

The supervisor could well be a suitably trained concrete foreman; for example, one who has obtained a City and Guilds who has obtained a City as Certificate in Concrete Practice. and Guilds

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# LONDON'S NEW LANDMARK

# "Topping Out" Ceremony on 245ft. Tower

"TOPPING OUT" ceremony was A held last week on the central tower block which is the dominating feature of the West End of London's latest landmark, the 28-37 Cavendish Square development, now nearing completion for The Land Securities Investment Trust, Ltd., by Taylor Woodrow Construction, Ltd.

This ceremony marked the culmination of a carefully phased development pro-gramme spread over the last three years.

Constructional work began in August 1958

began in August 1958 and the whole project will be substantially completed by the end of this year.

Running north to south through the centre of a 2½-acre island site between Cavendish Square and Oxford Street, the tower block is 245ft. high to parapet, over 331ft. above sea level and is one of London's high est buildings, being on a level with the base of the Cross of St. Paul's. Paul's.

This central tower his central flanked on the Square is flanked on the Cavendish Square frontage by an East wing of 17 storeys and a West wing of seven storeys, and together the three provide some 250,000 sq. ft. of office space.

The three towers rise from a base of the cavendary of the companies of the cavendary of the cavendar

The three towers rise from a base consisting of shops, a large store and other premises, business premises, many of them already occupied for already occupied for over a year, in two-storey buildings on the frontages of the surrounding thoroughfares (Holles Street and John Prince's Street in addition to Cavendish Square and Oxford

The architects are T. P. Bennett and Son; the quantity surveyors, Gardiner and Theobald; and the consultant engineers, Bylander, Waddell and Partners.

#### Flexibility of Office Buildings

The buildings are of reinforced concrete construction, clad with Portland Stone and Blue Pearl and Creetown grey granite. The main central tower is capped by a two-storey high Portland Stone parapet behind which are the main plant and service rooms and residential accommodation.

The office areas have been so designed that all projecting beams are omitted, leaving uninterrupted ceilings and facilitating the ultimate division of the space for users—a flexibility also extending to the arrangement of the windows and, internally, the arrangement of the heating convectors and electrical services.

The outstanding feature is the main

The outstanding feature is the main office entrance, in Cavendish Square. Two storeys high, this impressive hall is being decoratively treated with selected marbles, bronze screens and plateglass, and has a webbed and dome-shaped fibrous ceiling, with concealed lighting. Circular columns rising from the marble floor are clad in marble worked in 16 facets.

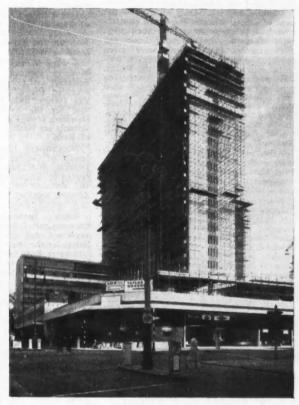
Between floor and ceiling at the entrance

is a large silver bronze screen, and similar

is a large silver bronze screen, and simi screens are to be situated at the entrances to the V.I.P. car park and to the show room which flank the entrance hall on either side.

The curved balustrade of the balcony at first floor level is to be in silver bronze, with glass panelling. The main staircase walls and floor and lift lobbies are in marble between the basement and second floor levels. floor levels.

Marbles drawn upon are: Tinos, for the columns; Botticino, wall cladding; Serpen-



The south elevation of the central tower. On the left is the seven-storey wing

tino, for pavement to entrance hall screen; and the patterned floor is of Roman Stone

and Bianco del Mare.
Terrazzo is used for the lift lobbies, and staircases from second to 20th floor levels.

#### **Autotronic Lifts**

There are four main staircases and the There are four main staircases and the main lift service will be provided by two banks, with four autotronically controlled lifts in each. One "express" bank (at 700ft. a minute) will serve floors from the eighth to the 19th only and the "local" bank at (500ft. a minute), floors to the eighth. Under the autotronic system, the lifts' controls can work out their own programme for dealing with the varying flow of passengers, automatically concentrating on the floors where traffic is heaviest in response to the "touch button" calling system.

system.

A modern central heating system, oilburning but convertible to solid fuel, and
capable of maintaining offices at temperatures of 70 degrees if required, is to be
sub-divided into zones, automatically controlled by thermostats to vary the heating
output to suit prevailing weather conditions and the effects of the sun in different
areas of the building. Heating convectors
are encased in African walnut panelling
and finished in Formica, with aluminium
trim.

Plant is housed on the windowless 21st floor and part of the 20th. Another area of the 20th floor has been left in abeyance for possible residential suites and flats, and in a further area, caretakers' flats are provided.

#### **Shopping Centre**

In the basement, in addition to further plant, there is to be mechanically-ventilated accommodation for nearly 200 ventilated accommodation for nearly 200 cars, with ramped access from Holles Street. Access to the service yard for one section of the Oxford Street shops is also from Holles Street, and access to the yard serving the remainder of the Oxford Street shops and other premises is in John Prince's Street.

Completing the Cavendish Square frontage are the premises and offices of the

Completing the Cavendish Square frontage are the premises and offices of the National Bank, extending into Holles Street, and the Phoenix public house, at John Prince's Street junction. These buildings, the first sections of the project to be completed have been occupied since to be completed, have been occupied since the end of 1959, the internal fitting out having been the subject of separate con-tracts with Taylor Woodrow Construction,

On the Oxford Street frontage, there are 11 shops, together with the premises of the British Home Stores, a T-shaped area the British Home Stores, a T-shaped area which has additional entrances in Holles Street and John Prince's Street. The British Home Stores, opened earlier this year, has 33,000 sq. ft. of ground floor shopping area, and over 20,000 sq. ft. of offices, staff quarters, stores and a canteen on the first floor.

Two further shops in John Prince's Street and one in Holles Street complete the original scheme, but Taylor Woodrow Construction began work recently on a separate £500,000 contract for the London County Council's Barrett Street Technical College, to be incorporated in the Oxford

County Council's Barrett Street Technical College, to be incorporated in the Oxford Street frontage of this site.

This will be a five-storey building on a concrete raft rising from the roofs over the shops and will be completed by the summer of 1963. (Architects, London County Council, Architects Department.)

#### Construction Features

Construction Features

A feature of construction at Cavendish Square has been the use of three tower cranes, two of which were specially modified to extend to 300ft.

An automatic batching plant, with two dyd. capacity mixers, was set up on site in the early stages, and the bulk of the concreting was carried out in situ.

The foundations for the two high tower blocks were of 7ft. thick reinforced concrete, and totalled over 7,000 cu. yd. These were concreted at a maximum of 650 cu. yd. in a day.

Another feat was the continuous pouring for 24 hours of the 300 cu. yd. (using small aggregate) required for the main beam, 100ft. long and 12½ft. wide, supporting the main tower block. Pouring started at 6.30 a.m. on a Friday in February, 1959, and continued until the Saturday morning, with a team of about 50 men working throughout, in conditions of intermittent rain and snow. of intermittent rain and snow.

#### Bricklaying Feat

Peak labour force was about 460. One of the men, Mr. Jack Good, bricklayer has been responsible for the laying at the rate of 450-500 bricks a day, of about 130,000 of 450-500 bricks a day, of about 130,000 Bimol bricks in the linings of the three boiler house flues. He was suspended in a cage as, floor by floor, the work progressed, and, towards the end of his task last month was operating some 260ft, above basement foundations.

Roof concreting was completed at the end of July, and, with the exception of two upper floors of the high tower, floors have been completed at an average of one per

been completed at an average of one per two-and-a-half weeks,

#### BRITISH ENGINEERS' EUROPEAN VISIT

#### Meeting with Prof. Leonhardt

SOME 50 British engineers and Contractors returned this week from a nine-day visit to Switzerland, Germany and Holland, where they inspected various road and bridge developments and discussed traffic design and construction problems with their Swiss, German and Dutch German and Dutch Swiss. associates. The visit was arranged by the Pavings Development Group of the Cement and Concrete Association.

In Switzerland the party inspected the experimental section of the Moriken-Brunegg road laid down in 1956, the results of which will be published next year, and toured concrete mountain roads and tunnels. They were also told of the plans for urban motorways in Zürich.

While in Germany the party witnessed construction work in the Freiburg area of construction work in the Freiburg area of the Basle-Karlsruhe motorway and the repair of concrete carriageways with pre-cast prestressed paving units. The Ludwigshafen-Mannheim road scheme and the Jan-Willem-Platz urban motorway pro-ject in Dusseldorf were inspected and in Duisburg construction work trees can in Duisburg construction work was seen on the Nord-Sud-Strasse urban motorway which includes the 1,860-metre Berlin bridge.

In Holland various road and bridge projects were visited and the first aqueduct be to be constructed in that country was seen. Before flying home the party saw under construction the Haringvliet sluices and prestressed motorway project. This scheme will be described in our next issue and will be the forerunner of a series of articles on the visit to appear in The Contract Journal.

#### Discourse with Prof. Leonhardt

While in Dusseldorf, the party gave a dinner to Prof. Dr.-Ing. F. Leonhardt of Stuttgart Technical University which was followed by an informal discussion on de-

BIRMINGHAM FIRM AWARDED

£3.8M. CONTRACTS

C. Bryant and Son, Ltd., Birmingham,

C. Bryant and Son, Ltd., Birmingham, announce that they have recently secured contracts totalling £3,800,000. The largest of these is for a new dental hospital at St. Mary's Row, Birmingham, for the United Birmingham Hospitals, costing £1,200,000. This is believed to be the first major hospital reconstruction in the Midlands since the ways.

sign and construction matters. Prof. Leonhardt, who is well known in England, has designed many outstanding concrete structures in Germany and elsewhere, in-cluding the Stuttgart Radio Tower.

In reply to many questions from the British visitors, Prof. Leonhardt revealed that he had designed new rubber bearings for very high loads and results of tests would be published towards the end of the

He said competition in design had been He said competition in design had been responsible for the great strides made in structural engineering in Germany. Contractors ran large design offices and were encouraged to submit alternative designs for almost any job. Only some 30-40 per cent of official designs, for which contractors had to quote as well as their own, were accepted.

Contractors in Germany were given about six months to tender for major projects, such as a bridge across the Rhine, but probably knew of the impending scheme a year ahead. Where tenders were obtained from selected contractors it was the rule to accept the lowest as it was assumed that the firm could do a good job. In the case of open tendering the lowest In the case of open tendering the lowest tender did not necessarily have to be accepted.

Asked why there was more in-situ concrete work rather than precast in Germany, Prof. Leonhardt said in-situ work was more economical in that country. Shuttering and scaffolding for instance were cheaper.

Prestressed concrete was acutally cheaper than reinforced concrete and 95 per cent. of his bridges had been constructed in prestressed concrete. Only small bridges were constructed using reinforced concrete. Professor Leonhardt inforced concrete. Professor Leonhardt thought prestressed concrete roads should have a future for they could eliminate cracks, joints and other difficulties but the concrete had to be of first-class quality. Curing was of the utmost importance.

# BELFAST AIR TERMINAL BUILDING TENDERS

Tenders are now being invited for the Tenders are now being invited for the building contract in connection with the Aldergrove Air Terminal at Belfast. The contract will be placed by the Air Ministry's Works Department, who will also supervise work on the site.

Gregg and Patterson (Engineers), Ltd., 530 Shore Road, Belfast, have been awarded the structural steelwork contract valued of £23 600.

awarded the structural steelwork contract valued at £23,600.
Architects for the scheme are W. H. MacAllister and Partners, Belfast, with Yorke, Rosenberg and Mardall, 2 Hyde Park Place, London, W.2, acting as consultants. The consulting engineers for the scheme are Clarke, Nicholis and Marcell, 21 Westbourne Grove, London, W.2, for structural work, and J. R. W. Murland of Belfast for mechanical and electrical work. W. H. Stevens, Belfast, are the quantity surveyors.

# hospital reconstruction in the Midlands since the war. The other contracts comprise: Birmingham University Halls of Residence—20-storey block and other buildings, £1,000,000; Inner Ring Road, Birmingham—Horsefair and Holloway Head junction, for Birmingham City Council, consisting of underpass and major concrete works, £750,000; two 20-storey blocks of flats and other buildings for Smethwick B.C., £600,000; office block for Yarwood Ingram and Co., Kingsbury Road, Birmingham, £150,000; and office and warehouse block for Joseph Gillman and Son, Ltd., Loveday Street, Birmingham, £100,000. NEED FOR LONDON TUBE **IMPROVEMENTS**

An essential to the solution of London's worsening traffic problems is the improve-ment of the Underground system, says the London Transport Executive's annual re-view for 1960.

The review states that if urban motorways were brought close to Central London, traffic far in excess of the capacity of the streets would be poured into the centre, and the problems of congestion and parking would be made much worse. Passenger travel on the Underground continued to rise in 1960, reaching 674m. tinued to rise in 1960, reaching 674m.-an increase of 0.8 per cent. over 1959.

# TRAFFIC ENGINEERING DIPLOMA EXAMINATION

The Institution of Highway Engineers announce the following results of the 1961 examination:

examination:
Diploma and Graham Bennett Prize—
G. K. Benn (Westminster City Council).
Diplomas—H. K. Arnold (Devon C.C.);
A. N. Brant (Cumberland C.C.); M. S.
Collins (City of New Sarum); G. P. Crow
(Ministry of Transport); G. M. Dickson
(Edinburgh Corporation); A King (Renfrew
County Council).

Barnes Borough Council decided last week to rescind the decision made at a previous meeting to construct a £1m. road through the borough from east to west.

#### Late Construction News

VIADUCT TENDERS. — The Contract Journal understands that the Ministry of Transport hope to invite tenders in October or the two-mile viaduct section of the hiswick-Langley Motorway. Sir Alexander Gibb and Partners are consulting engineers.

SUTTON OFFICE BUILDING. — Rush and Tompkins, Ltd., Sideup, Kent, have been awarded the contract for erection of an office building at Sutton Park Road, Sutton, Surrey, for Turners Asbestos Cement Co., Ltd. The architects are Elliott, Cox and Partners, 172 Buckingham Palace Road, London S. W. 1 Partners, 172 London, S.W.1.

11-STOREY FLATS AT WOOLWICH. wich B.C. have accepted the £118,400 tender of Modular Concrete Co., Ltd., 1258 London Road, London, S.W.16, for construction of the foundations and reinforced oncrete frames for three 11-storey blocks of flats at Glyndon redevelopment area, stage 1. The design consultants are Norman and Dawbarn, 7 Portland Place, London, W.1.

SEWAGE WORKS EXTENSION.—Subject to Ministry approval, Stroud and District Sewerage and Composting Committee have accepted the £287,245 tender of Kottler and Heron, Ltd., Cliftonville, Northampton, for the extension of the Stanley Downton sewage disposal works. The consultants are Herbert Bateman and Partners, of Bath of Bath.

SCUNTHORPE HOUSING.—The £582,287 tender of George Wimpey and Co., Ltd., London, W.6, has been provisionally accepted by Scunthorpe Borough Council for the erection of 216 dwellings and 190 garages, together with roads and sewerage, at Westeliffe Estate.

ROAD IMPROVEMENT. — Staffordshire County Council have awarded a contract to Wrekin Construction Co., Ltd., Horsehay, Salop, for the improvement of the Stafford-Uttoxeter Road, A.518, at Amerton. The length of the road to be reconstructed is approximately 700yd.

ILFORD FLATS.—A £112,398 contract has been placed with Wates, Ltd., London, S.W.16, for the erection of a nine-storey block of 36 flats at Redbridge Lane, Ilford, for Hilbery Chaplin and Co., Ltd.

HAMPSTEAD REDEVELOPMENT. — The redevelopment as flats of 1-13 Oak Hill Park, Oak Hill Lodge and Oak Hill House, Park, Oak Hill Lodge and Oak Hill House, Hampstead, is to be carried out by A. T. Chown and Co., Ltd., 21 Chilworth Street, London, W.2. Architects for the scheme are Michael Lyell Associates, 16 Yeomans Row, S.W.3, the quantity surveyors are Reddick and McDonald, 119 Victoria Street, S.W.1, and the consulting engineers are L. L. Kenchington and Partners, 195-197 Great Portland Street, W.1.

£144,500 CONTRACTS. — Holloway Brothers (London), Ltd., S.W.1, have been awarded a £97,500 contract for the erection of phase 1 of an electrical sub-station in reinforced concrete construction, to be sited on the corner of Beech Street and Beech Lane, E.C.1, and which comprises part of the Barbican Redevelopment Scheme. The company have also received a £47,000 contract from the London Electricity Board for the construction of a switch house at Sydenham Park, Sydenham.

#### £700,000 CONTRACT FOR F. SHEPHERD

construction of a dining hostel, gymnasia and alterations to the teaching gymnasia and alterations to the teaching block at the City of Leeds Training College, Becketts Park, Leeds, is to be undertaken by F. Shepherd and Son, Ltd., York, who have been awarded the contract for nearly £700,000.

The buildings have been designed by G. Alan Burnett, Dipl.Arch., A.R.I.B.A., Leeds, in collaboration with J. R. Sheridan-Shedden, Dip.Arch., F.R.I.B.A., the city architect. Work starts this month, and is due for completion in July, 1963.

#### EXTENSION OF A.E.C.'s SOUTHALL FACTORY ESTATE

## £430,000 Despatch Building Completed

THE factory estate of A.E.C., Ltd., at Southall, Middx., has been increased to 1,000,000 sq. ft. with the recent opening of a new £430,000 chassis despatch building.

chassis despatch building.

Erected in 11 months, the building comprises two bays and covers a ground floor area of over 50,000 sq. ft. Adjoining this at the rear is the paint bay, which also has a first floor level which, apart from paint storage and mixing, provides stores and office accommodation for the company's printing and stationery department. This level occupies nearly 13,000 sq. ft. In addition, a new boiler house, which supplies heat to the new building, covers some 2,500 sq. ft. some 2,500 sq. ft.

some 2,500 sq. it.

The main building measures 420ft. x 120ft. and has a total of 16 pits, each of which is fitted with fluorescent lighting and compressed air point and electrical plugging points. The two chassis bays are provided with an underfloor exhaust fume extent to which whiches can be competed. system to which vehicles can be connected by flexible couplers in order to keep the shop clear of exhaust fumes. Situated at the extreme north end of the

shop clear of exhaust fumes.

Situated at the extreme north end of the building and adjacent to the main drive is a showroom measuring 66ft. x 30ft. The longer side—which faces on to Windmill Lane—is made entirely of glass, comprising three sheets of plate glass each measuring 19ft. 6in. x 11ft. 6in.

Construction of the new building, which stands on 256 reinforced concrete piles. each 40ft. deep, has involved the use of 315 tons of structural steel. Nearly 6,000 cu. yd. of concrete went into the main floor, standing apron and surrounding roads, a further 8,500 cu. ft. into ground beams and roof slabs, and a total of 520,000 bricks have been used. Asbestos roofing sheet and patent glazed roofing covers areas of 29,000 sq. ft. and 18,500 sq. ft. respectively and the entire undertaking has called for the excavation of 25,500 cu. yd. of earth.

Adjoining the new building and standing on the perimeter apron is accommodation for text lead goatery. In addition for

ing on the perimeter apron is accommoda-tion for a test load gantry. In addition, a 30-ton weighbridge is installed with its weighing gear inside the building.

#### **Factory Operation**

After road testing, chassis proceed to a new flow-type painting installation, provid-ing two lines of chassis to be painted at the same time. A ring main system pipes paint to operators' guns direct from the main paint store and thereby eliminates

the necessity to halt production while individual spray gun reservoirs are replenished. A choice of 12 paint colours are provided.

Chassis returning from road testing are washed and cleaned, then dried off in a hot-air drying tunnel. The paint finish, either in customer's livery or in standard primer, is then applied and the chassis move to a further hot-air drying tunnel. The final operations include fitting of electrical accessories and tool kits and chassis are then ready for delivery to customer or bodybuilder.

Contractors

#### Contractors

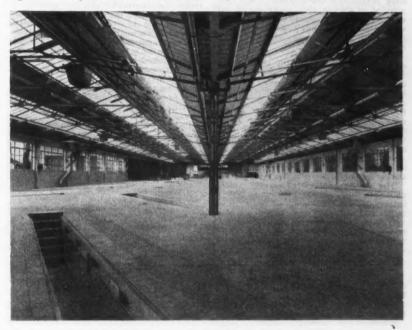
The consultant architects for the build-g were Harry Weedon and Partners,

ham, 17, were the quantity surveyors. The main contractors were George Wimpey and Co., Ltd., Hammersmith Grove, London, W.6.

#### **Sub-Contractors**

Sub-Contractors

Sub-contractors included: Oxford and Cowley Ironworks, Ltd, steel frames and roof; Weylex, Ltd., electrical installations; Hopes Heating and Engineering, Ltd., heating; Atlas Sprinkler Co., Ltd., sprinkler system; Becker Equipment and Lifts, Ltd., lift installation; Perfectair, Ltd., spray painting and extraction systems: Abix (Metal Industries), Ltd., metal partitioning; Cementation, Ltd., pile boring; Elgood and Co., granolithic flooring; Empire Stone Co., Ltd., reconstructed stonework: Henry Co., Ltd., reconstructed stonework; Henry



Interior of main building, where 16 inspection pits are located

45 Calthorpe Road, Edgbaston, Birmingham, 15, and the consulting engineer was John S. Tooke, M.I.Struct.E., 87 Eccleston Square, London, S.W.I. L. C. Wakeman and Partners, 11 Highfield Road, Birming-

Hope and Sons, Ltd., metal windows; Haskins Roller Shutters, roller shutters and showroom windows; Shanks and Co., Ltd., sanitary fittings; Matthew Hall, Ltd.,



The front elevation of the new Chassis Despatch Building

#### FURTHER FALL IN PRIVATE ARCHITECTS' **COMMISSIONS**

#### 10 per cent. Drop on First Quarter

THE estimated total value of new commissions for private architects has fallen for the second quarter in succession. A report by the Royal Institute of British Architects gives the figures for the period April/June, 1961, as £253m. compared with £282m. in the first quarter of the year and £271m.

in the same period a year ago.

This represents a fall of 10 per cent. over the first quarter of the year and of seven per cent, over the second quarter of 1960.

of 1960. It is concluded that since tender prices have risen in the past year and architects have presumably taken some, if not full, account of this in their estimates of the value of new commissions, the actual volume of new building commissions compared with a year ago has probably fallen pared with a year ago has probably fallen by 9-10 per cent.

by 9-10 per cent.

The report continues: The second quarter of the year normally shows a fall in relation to the first quarter and the current position is not a major decline; in 1959 and again in 1960 the second quarter showed a fall in relation to the first quarter of 17 per cent. and 25 per cent. respectively. Nevertheless, this is the first time since the middle of 1958 that two successive quarters have shown a fall in the total value of new commissions: it strongly suggests that the boom sions; it strongly suggests that the boom in new commissions ended with 1960 and

that a period of decline has now set in.

The policies announced by the Chancellor on 'uly 25 will of course have a further depressing influence on decisions to build, and although most offices are still very busy, architects must hope that it will be possible to encourage investment again before the present stock of projects is worked off.

#### Pattern of Changes

A table in the report shows the pattern of changes among the different types of building. Commissions for public authorities have risen to £82m., 19 per cent. above the figures for the first quarter of the year

and 14 per cent. above the same period in 1960, and within this total commissions for public housing at £22m. are back to a high level. Commissions for private clients have, however, fallen sharply to a total of £171m., 20 per cent. less than in the first quarter and 14 per cent. below the level for the corresponding period of 1960

#### **Public Authority Commissions**

The survey results for the first quarter of the year showed that public authority commissions had fallen, compared with the first and last quarters of 1960, and commissions had fallen, compared with the first and last quarters of 1960, and private commissions, excluding housing, had risen a little. Housing, which was far below the figures for the last quarter of 1960, had pulled the total of private commissions into an overall fall. The partial reversal of these trends in the April/June quarter suggests that public authorities were able to start all their 1960/61 programmes well before the end of that year and have now made a vigorous start on their programmes for the next financial year; and that the decline in commissions from private owners and developers, which

year; and that the decline in commissions from private owners and developers, which started last quarter in housing, is now spreading to other sectors.

Private housing, at £48m., shows the lowest quarterly total since mid-1958 and and it now seems likely that speculative house-building has been sharply cut back. Commissions for private offices and banks have also fallen sharply, being now only a half of what they were both last quarter and a year ago. These are the groups in which most speculative building falls, though they include also a considerable amount of building for the sole occupation of the building owner. These reductions amount of building for the sole occupation of the building owner. These reductions therefore suggest that plans for speculative property development as a whole were tending to decline during the second quarter of the year.

Commissions for other commercial and miscellaneous buildings have fallen also but are still above the general level for 1959 and 1960. Only private commissions for industrial building have held their own,

with a moderate rise over the estimate for the first quarter of the year, though they are still below the high levels which obtained at the end of 1959 and in the first half of 1960.

A regional table shows that all regions

A regional table shows that all regions except the south west have suffered a fall in total commissions, the sharpest reductions, of approximately 25 per cent. below the first quarter's figures, occurring in the Home Counties, the Midlands and Scotland. Within some regions, however, the level is above that reached in the second quarter of 1960; this is most apparent in the north east and north west regions, which have increases of 23 per cent. and 47 per cent. respectively.

Large firms lost more ground than the small and medium firms during the quarter. Compared both with last quarter and with the corresponding period a year ago, the estimated value of new commissions for large firms (firms with 11 or more architectural staff) is 15-20 per cent. less. It is noticeable that within this overall reduction the large firms have suffered a more than proportionate reduction in new commissions for private housing. The small and medium firms appear to have held their position, small reductions over the estimated values for the first quarter of the year still leaving them slightly above their position a year ago.

In value terms the ratio of cancelled or

position a year ago.

In value terms the ratio of cancelled or postponed work to all new commissions was 1:14, less than in the first quarter of the year when the ratio was 1:10.

# ST. PAUL'S CHOIR SCHOOL DESIGN COMPETITION

Mr. Henry Brooke, Minister of Housing and Local Government, has announced that the following architects have accepted his invitation to submit designs for the new invitation to submit designs for the new Choir School to be built on a site adjoining the eastern end of St. Paul's Cathedral: Architects' Co-Partnership; Raymond C. Erith; Howell, Killick and Partridge; Robert Matthew and Johnson-Marshall; Lord Mottiston (Seeley and Paget); and Stillman and Eastwick-Field.

The assessors of the competition will be Sir William Holford (president, Royal Institute of British Architects), Professor Llewelyn Davies (professor of architecture, London University) and Dame Evelyn Sharp (Permanent Secretary, Ministry of Housing and Local Government). Designs will be submitted by February and will be

Housing and Local Government). Designs will be submitted by February and will be exhibited in due course.

#### SUBSTANTIAL LOSS FOR WILSON LOVATT

In his circulated statement for the year 1960, Sir Maurice Adams, K.B.E., M.I.C.E., chairman, Wilson Lovatt and Sons, Ltd., reports a net loss of £232,566, a "substantial loss compared with the net profit shown in last year's accounts. It is unfortunate that during the period of expansion we experienced one of the wettest summers of this century and very appreciable losses have been incurred in a wide range of contracts." he states. The directors are unable to recommend any dividend for 1960.
"Some improvement is discernible dur-

end for 1960.

"Some improvement is discernible during the first half of the current year but it should be borne in mind that the level of activity in the building and civil engineering industry has been, and is being, maintained at a high level with the resultant acute shortage of labour and, in some cases, essential materials."

The around general meeting is to be held.

The annual general meeting is to be held at Wolverhampton on September 29.

# ELECTRICAL ENGINEERS EXHIBITION DINNER

Guests from over 50 overseas countries will attend the Second Electrical Engineers Exhibition Dinner at Grosvenor House, London, on September 28.

Altogether nearly 800 will attend.

Altogether nearly 800 will attend, amongst them being leading personalities in the British electrical industry and Government Services.



This building is the new headquarters of Dorothy Perkins, Ltd., at Bracknell New Town, Berks. It has recently been completed by I. Jarvis and Sons, Ltd., Vauxhall Bridge Road, London, S.W.I., and provides 40,650 sq. ft. of office accommodation and a 49,800 sq. ft. warehouse. The structure comprises a precast reinforced concrete frame with hollow pot floors and Ilin. cavity brickwork. Mr. E. A. Ferriby, B.Arch., F.R.I.B.A., A.M.T.P.I., chief architect, Bracknell Development Corporation, designed the building, which cost about £360,000

# SEA TERMINAL BUILDINGS, DOUGLAS, I. of M.

Five-phase Scheme to Avoid Summer Working

EXTENSIVE modern accommodation for the half million passengers passprovided by the new pier approach and sea terminal buildings now being built there for the Isle of Man Harbour Board.

Construction is in the initial stages and presents certain novel problems since no work can proceed during the summer influx of visitors. This leaves a working period of the worst seven months of the year, starting in October. In addition, at the end of each period there must be sufficient of the old and new buildings to cope adequately with the holiday traffic.

The complete construction is planned to

take place in five phases, each phase being completed in one working period. Last winter during the first phase, new horse-car shelters, roundabouts and other road works shelters, roundabouts and other load works were constructed and the main services laid. In the second phase a new waiting hall will be built, and in the remaining phases the main buildings and other ancillary works will be completed.

lary works will be completed.

One of the main aims of the project is to meet the traffic problem at the pier approach. In the limited area available separate parking or waiting areas have been provided for the different types of vehicles, i.e. public transport, private coaches, taxis, in the content of the project of t i.e. public transport, private coaches, taxis, private cars and horse-cars. The architects carried out a special study of passenger movements before finalising the layout so that pedestrians may move between the arrival or departure piers and any of the new buildings and transport waiting areas with the minimum interference with each other, without crossing the paths of the vehicular traffic, and almost entirely under cover.

The terminal buildings will provide on four floors facilities for both travelling and resident visitors, together with staff and office accommodation for the Harbour Board.

At ground level is the passenger concourse with shelter for passengers between the boats and the various transport facilities. There is a large waiting hall seating 1,620 persons, plus buffet and waiting rooms, toilet accommodation, left luggage facilities, information and booking offices and essential shopping facilities.

The first floor comprises promenade space with glazed sides, affording fine sea and land views. This floor also houses the Harbour Board offices and the main kitchen.

kitchen.

The second floor is confined to a concrete central core partly supporting a restaurant above and housing a passenger lift and main staircase, while on the third floor is a public restaurant, some 40ft. above the ground, accommodating 128 passengers. This restaurant is circular in shape, with fully glazed sides. A concrete spire rises some 70ft. above the roof of the restaurant.

the restaurant.

The new buildings are all to be constructed on the site of the existing terminal so that no new marine work is required. The site consists of land reclaimed mostly in the latter half of the last century we filling with timed chale behind recommend. by filling with tipped shale behind masonry sea walls.

The structural design has been largely influenced by consideration of the constructional phases and makes considerable use of prefabrication. The single storey waiting hall will consist of precast con-

crete curved rib frames at 25ft. centres between which will span timber joists. To these will be nailed direct the ceiling boards and woodwool slabs for the roof. A large proportion of this work is being prefabricated ready for autumn or winter erection.

rection.

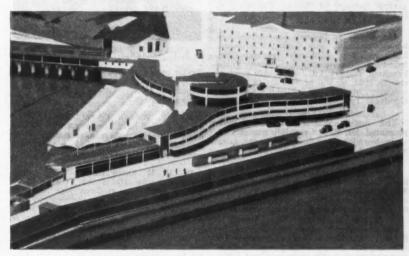
The two-storey part of the main building will consist largely of precast columns and beams probably making use of a proprietary type of floor which itself consists of precast units. Only the central core of the building supporting the restaurant will be mostly of in-situ construction since, other than columns, it does not lend itself

other than columns, it does not lend itself to economical precasting.

The total cost of the complete scheme is expected to be about £400,000.

Davidson Marsh and Co., Douglas, are the architects, working in association with T. H. Kennaugh. The consulting engineers are E. W. H. Gifford and Partners, Southampton.

Rural Industries, Ltd., Douglas, were the contractors for the first phase, and have received the contract for erection of the waiting hall as the second phase.



A model of the completed terminal

#### DEMOLITION CONTRACTORS LAUNCH APPRENTICESHIP SCHEME

From a Correspondent

THE National Federation of Demolition Contractors, are this year marking their coming-of-age by launching an apprenticeship scheme. The aim is to create a much needed nucleus of skilled labour and to give improvers a status and greater incentive.

status and greater incentive.

At the Federation's annual convention, held in Llandudno recently, it was pointed out that qualified demolition contractors first came into their own following the wartime bombing of many of Britain's cities. They were now coming into their own again as a result of the efforts of town and country planners to concentrate new building developments on the sites of existing old buildings as a means of preserving green belts outside the boundaries of cities and towns.

The president, Mr. S. B. Allison, of

of cities and towns.

The president, Mr. S. B. Allison, of Glasgow, pointed out that demolition work was a highly skilled operation. Not only did the workers need to have an aptitude for heights, but they also had to have a knowledge of valuable materials so that they might be salvaged. "Such items as

Adams' fireplaces and intricately carved

Adams' fireplaces and intricately carved mahogany doors are extremely rare nowadays," he said, "and it is important that they should not suffer damage as the buildings are brought down. That is why our workers find a minimum of something like £12 weekly in their pay packets."

At the annual banquet a toast to the Federation was proposed by Mr. M. W. Bennitt, permanent under secretary, Ministry of Works. He stressed that demolition contractors would have an important part to play in shaping the Britain of the future. Building land was becoming more and more scarce and this meant that the only places where expansion could be effected were those sites on which could be effected were those sites on which buildings already existed. Tackling demo-lition work willy-nilly could be an ex-tremely dangerous procedure and he was

tremely dangerous procedure and he was glad that in the interests of safety and good workmanship the Federation was launching an apprenticeship scheme.

In his response Mr. Allison criticised local authorities who, at a time when the Chancellor of the Exchequer was calling for a curb on extravagance, bought waste

products from the coal mines and steel products from the coal mines and steel furnaces for roadmaking when there was ample material available at demolition sites. "We could help them and help ourselves by taking rubble to where it is needed."

Referring to the proposed apprenticeship scheme he said that while not every candidate would prove suitable for demolition work, youngsters should be encouraged to undertake the proposed three years of practical training for at the end of it they practical training for at the end of it they would find lucrative and important positions awaiting them. It would be more simple than many apprenticeship schemes but in many cases even more rewarding and there would also be opportunities for improvers to interest themselves in the executive side of the business.

A toast to the convention hosts, the Midland and Welsh Region, was proposed by Mr. W. Sinclair, Glasgow, acting secretary of the Scottish Region, and the response was by Ald. P. W. Scott, Halesowen, chairman of the Midland and Welsh Region. Mr. M. Dudley, Sutton Coldfield, vice-chairman of the Midland and Welsh Region welcomed the guests and replies vice-chairman of the Midland and Welsh Region, welcomed the guests and replies were expressed by Mr. A. B. Moore, regional director, Ministry of Works, Bir-mingham, and Mrs. M. Heywood, West-houghton, Lancs. Mr. D. L. Balderstone, Kidderminster, former president, proposed the loyal toast.

#### Men and Movements

THE managing director of Edward Wood and Co., Ltd., Mr. John H. Roberts, has been appointed chairman, and will retain his present position. Mr. William Kirkham has resigned from the chairman-ship and the board after 60 years with the company. Mr. Edgar Barlow, acting assistant secretary, becomes secretary in place of Mr. Albert Kenyon, who relinquishes the position after 52 years with the company. Mr. Kenyon remains on the board.

Mr. P. W. Howard, deputy chairman and former managing director of BTR Industries, Ltd., has retired after 35 years with the company. He became a director in 1949, and managing director in 1951, which office he held until 1959, having become deputy chairman shortly after the company changed its name from British Tyre and Rubber Co., Ltd., in 1957. The company have also announced the appointment of Mr. R. Kris, B.Sc., as manager, thermoplastics mouldings and extrusions, responsible for development of the company's business in this field. For the past four years Mr. Kris has held the post of general manager of Aeroplastics, Ltd. Sales manager for thermoplastics mouldings and extrusions is Mr. G. G. Cope, formerly general manager of Durable Plastics, Ltd. (now known as Plastic Coatings, Ltd.).

Mr. G. T. T. Jackson has commenced his appointment with Cranes (Dereham), Ltd., as their Midlands representative, based at Nottingham, and when Crane Fruehauf Trailers, Ltd., commence production in 1962, he will be also acting for this company. Mr. Jackson joined Cranes from Goodyear Tyre and Rubber Co., Ltd.

The British Wagon Co., Ltd., have promoted Mr. P. S. Greenhill, manager of their Norwich branch, to assistant sales manager at head office, Rotherham.

Flygt International AB, of Stockholm, have appointed a new export manager, Mr. Börje Nilsson. Mr. Nilsson will shortly visit Britain as part of a tour of the company's overseas agents and subsidiaries.

The Nuralite Co., Ltd., a member of the British Urilte Group, have announced the appointment of the following regional sales representatives: (Northern region), Mr. Harold Aspin, Mr. Edward Turner, Mr. Howard Suddes and Mr. Keith Liggins; (Eastern region) Mr. George Boultbee and Mr. Michael Bowers; and (Western region) Mr. Edryd George.

Mr. J. E. Hutton will join the board of Turners Asbestos Cement Co., Ltd., next month. He was recently sales director of Asbestos Cement, an Indian subsidiary of Turner and Newall, Ltd. The parent company have announced that their representatives on the board of the new Nigerian manufacturing subsidiary, Turner Asbestos Cement (Nigeria), will include Mr. R. M. Bateman, deputy chairman of Turner and Newall; Mr. K. Neve, a director of Turner and Newall; and Sir John Rankine, former Governor of the Western Region of Nigeria.

Mr. J. D. Eccles has been appointed director and general manager of Head Wrightson Stockton, Ltd., and Mr. G. F.





J. D. ECCLES

A. J. LONG

Taylor general manager of Head Wrightson Steel Foundries, Ltd. Mr. A. J. Long has joined the Head Wrightson Export Co. as general manager.

Mr. W. Weston Howard, C.B.E., and Mr. A. C. Ball have been appointed respectively chairman and managing director of Hayward Tyler and Co., Ltd., a subsidiary company of Stone-Platt Industries, Ltd.

Dr. D. H. Sharp has been appointed director (technical) of the Federation of British Industries as from November 1. He will take up the appointment on the retirement of the present technical director, Major-General A. J. H. Dove, who is leaving the Federation at his own request at the end of October in order to devote more time to voluntary work. At present, Dr. Sharp is assistant to one of the managing directors of Fisons, Ltd.

Berks., Bucks. and Oxon Trading Co., Ltd., have appointed Mr. F. W. Emery as plant sales representative. Robert Hudson, Ltd., have announced that Mr. R. A. Hudson, formerly export sales manager, has now been promoted to specialist duties in the company's manufacturing division. Mr. Michael J. Theakston, A.M.I.Loco.E., formerly London manager, has been appointed export sales manager and is now based at head office, Leeds. The new London manager is Mr. Bernard A. Vickery, formerly technical sales representative in that area. Mr. Francis Theakston, O.B.E., M.I.Mech.E., M.I.Loco.E., will continue as consultant director at London office.

A number of changes have been made within the organisation of Castrol, Ltd. Four new assistant managing directors will take office on January 1, 1962, when they will relinquish their present appointments. They are Mr. J. A. V. Watson, general manager, Castrol division, who will be succeeded by Mr. K. C. McCarthy; Mr. L. G. Packham, general manager, overseas division, to be succeeded by Mr. W. F. Phillips and Mr. R. Layet; Mr. C. E. R. Millidge, sales manager, Castrol division, whose successor will be Mr. E. E. Hughes; and Mr. A. A. Barr, group publicity manager, who will be succeeded by Mr. K. E. Shurey. Other appointments which will take effect at the same date will be those of Mr. W. F. Freestone as manager, overseas division; Mr. C. E. Parsons, manager of overseas marine department; and Mr. J. C. Edmunds, as assistant group publicity manager.

Mr. P. R. Scutt, managing director of Tecalemit, Ltd., recently visited America. The object of his visit was to extend the company's business in the U.S.A., and to attend a board meeting of Imperial-Eastman Corporation, of Illinois, of which company he is a director.

Sir Norman Kipping, director-general, and John Whitehorn, deputy director (overseas), of the Federation of British Industries are visiting Japan from October 4 to October 21. During their stay Sir Norman and John Whitehorn will have discussions arranged by the Keidanrente equivalent in Japan of the F.B.I.—and will visit a number of Japanese factories. They will also be visiting the British industrial and commercial communities in Tokyo and Osaka.

Among passengers arriving in this country from New York on the "Queen Elizabeth" recently was Mr. Meyer Greif, a prominent New York building contractor.

#### MUNICIPAL

Newport (Mon.) B.C. have been recommended to appoint Mr. R. P. Radcliffe and Mr. D. B. Owen, at present both chief assistants, respectively, as deputy borough engineer and deputy borough architect.

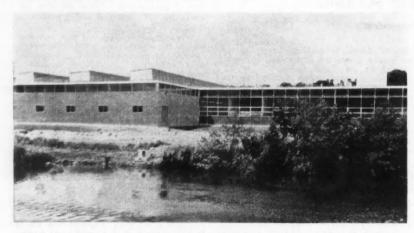
Mr. J. Greaves has been appointed engineer and surveyor with East Grinstead (Sussex) U.D.C., in succession to Mr. B. J. Cornelius, who has obtained an appointment with the Ministry of Housing and Local Government.



Banffshire Planning Committee recently approved a recommendation by the county architect, Mr. A. M. Wilson, that the council should adopt a policy of accepting all-in contracts.

Mr. Wilson said that all-in contracts would be as much as 10 per cent. more costly than separate trades contracts, but this might well be saved by finishing the jobs quickly.

"In separate trades you have different contractors and they get loaded down with other work," he said. "It is a continual chase, day after day, chasing contractors."



Taylor Woodrow Construction. Ltd., have completed in just over seven months a new machine components factory and office block at Bath for Horstman, Ltd. Despite the fact that work was put back when the River Avon overflowed its banks, completely flooding the site soon after work began last November, the contract was finished on time. The new premises, constructed with an Arcon "Monitor Roof" steel-framed system, was erected on piled foundations and ground beams. Architects were Taylor and Yandell, A/A.R.I.B.A., M.S.I.A., of Bristol

# COMPLEX SEWER RESTORATION **SCHEME**

Remedial Work Following Subsidence



Fylde Street after the collapse

A REMARKABLE scheme of sewer restoration has recently been completed at Farnworth, Lancs., for the Borough Council, at a cost of about £220,000.

£220,000.

On September 12, 1957, after torrential rains the 3ft, diameter Farnworth main outfall sewer in Fylde Street collapsed and an overlying 15in, diameter surface water sewer was broken. The roadway gradually subsided to form a crater 120ft, long, 18ft, wide and 12ft, deep. Sixteen houses were so shattered that they could not be repaired, 99 houses were without sewerage facilities, 121 houses had to be evacuated

and there were 337 homeless. The main outfall sewer downstream of the collapse was jammed with silt and debris for a distance of 175yd.

The consulting engineers, J. D. and D. M. Watson, 67 Tufton Street, London, S.W.I, were faced with a task of unusual complexity. While measures were undertaken to rehabilitate the area, investigations lasting four months were made into the causes of the sewer collapse. Indeed, the history of the district, with its mining activities, its hidden watercourses and soil conditions was fully probed.

Twenty boreholes sunk within a radius

of 300yd, of the subsidence crater revealed a layer of predominantly silty material, 20ft, thick, overlaid by 15ft, of filling in Fylde Street. It was concluded that the prime cause of the collapse was the removal of support to the sewer by ground water movements at a point where the sewer crossed the Farnworth Hall Clough.

The nature of the ground was such that to construct a new main sewer in Fylde Street without endangering the remaining properties was out of the question. A completely new sewer was constructed in tunnel in Hall Lane, some 300ft, from Fylde Street, and deep in the boulder clay underlying the silty material. This sewer has an internal diameter of 6ft, 6in., and is 800vd long. is 800yd, long.

is 800yd, long.

The level of the upper surface of the boulder clay along the new sewer line was variable, and to ensure that there was adequate boulder clay cover above the tunnel at all times, it was necessary to construct backdrop manholes with drops of 12ft., 19ft. and 30ft., the latter being divided into two 15ft. drops. These relatively deep drops are achieved by twin vertical cast-iron drop pipes in the manholes, the sewage entering by means of spiral vortex chambers and discharging into a water cushion at the foot of the drop pipes.

The waterladen silty ground overlying the boulder clay, and the close proximity of houses made the sinking of one of the shafts impossible either by free or compressed air, and the ground surrounding the shaft had to be frozen for a period of 18 weeks before excavation and shaft lining could be carried down into the boulder

The emergency clearing and remedial work was carried out by William Pollit and Co., Ltd., Pool Street, Bolton, and J. W. Bradley, Hall Lane, Farnworth. F. J. C. Lilley (Contractors), Ltd., 61 Meiklewood Road, Glasgow, S.W.I, were responsible for the construction of the new main sewer in Hall Lane.



Recent view of Fylde Street

#### WORK STARTS ON "DIXON'S BLAZES" INDUSTRIAL SITE

WORK has commenced on the develop-W ment of a new industrial centre at "Dixon's Blazes" in the Hutchesontown

"Dixon's Blazes" in the Futcheson area of Glasgow.

The total area, purchased by Taylor Woodrow Industrial Estates, Ltd., from Colvilles, Ltd., is 35.8 acres. It is intended to develop the site for the building of both small and large factories ranging from about 5,000 sq. ft.

The scheme is complementary to

in area. The scheme is complementary to the Gorbals replanning and housing project, and the general plan of the layout of roads and services has been approved by the City Corporation.

The consulting architects acting for Taylor Woodrow in the layout of the estate are Keppie Henderson and Partners, 21 Woodside Place, Glasgow, who have prepared a site plan and will be concerned

in the design of the factories. Woodrow engineers are carrying out the engineering design and soil research for roads, services and layout problems. Factory building will be begun before the end of the year.

Inquiries for buying sites and buildings have already been received from a number of firms, among them: Thomson and Brown Brothers, Ltd.; Avon India Rubber Co., Ltd.; The Glasgow Knitting Factory, Ltd.; Monks and Crane, Ltd.; A. F. Reid and Sons, Ltd. and Bayne and Duckett, Ltd.

# Talking of Safety

"DRAGEE"

ON the following day I told Derek Cooper, the site agent, about the incident at the farm where I was stay-We were sitting in Derek's office after lunch, enjoying a smoke and a cup of tea. On the blackboard I had drawn a rough diagram of the circuit linking Mrs. Spicer's iron with the electric kettle, and Derek was studying it with interest.

"That's the worrying thing about electrical equipment," he said. "Everybody knows that electricity is dangerous, yet people still go on taking chances with it. What's the reason? Ignorance or carelessness?"

carelessness?"

"A bit of each, I should say—coupled with over-confidence. Strangely enough, electricity has a pretty clean record on our jobs, but I'm rather inclined to put that down to the high quality of British electrical equipment. The trouble usually starts when people attempt to improvise, or else try to make a piece of equipment do something for which it was not designed."

"I agree—and what's the cure for that?"

"Well, you could try being a bit tough to begin with. Stop any monkey-

to begin with. Stop any monkey-business with the equipment and make sure it receives proper attention. Don't allow anyone but experienced electrical fitters to alter or instal your temporary site services. And—most important of all—reduce the supply for portable electrical equipment, such as tools and hand-lamps, to a safe pressure."

"What do you call a 'safe' pressure."

What do you call a 'safe' pressure,"

Derek asked.

"It is normally accepted that portable articles should operate on voltages of not more than 55 volts to earth. This is done by using a suitable transformer—that is, one which is robust enough to stand up to site use—having 110 volts secondary wind-

site use—having 110 volts secondary wind"Dragee," who is a practising safety
engineer, would welcome subjects for discussion in this column. All names of persons
mentioned in these discussions are entirely
fictitious. Questions of law are expressed as
the author's personal opinions and are not
claimed to be authoritative.—EDITOR.

ings with an earthed centre point. Again, hand-lamps are often used in confined spaces such as boilers or tanks, and in such cases we would reduce the voltage still further, usually to 25 volts or less. "Just now," I went on, "I mentioned 'temporary services.' We are accustomed to thinking about all site services as 'temporary' ones, but in fact on many large jobs these services are in regular use for long periods of time, and it is better to regard them as semi-permanent rather than temporary—by providing robust cables and temporary—by providing robust cables and connections and by making sure that they are properly routed between the supply points and the appliances, so that they are kept well out of harm's way.
"But to get back to the subject of 'earthing,' I suppose that is where we most

often come to grief. There appears to be a widespread idea that where an appliance is only to be used for a short time, an earth is not really necessary. You and I know that this is absolute nonsensemany accidents are caused in industry through neglecting to provide a serviceable earth, and unfortunately these accidents are particularly prevalent on constructional

Derek lit another cigarette. "I suppose the reason why that is not generally recognised is because of the higher frequency level of all the other kinds of accidents?"

"That may be co." I

"That may be so," I replied. "People are apt to be more impressed by the higher frequency rates of certain types of accidents, rather than by the severity rates of the more violent but less frequent ones. However, as I suggested before, accidents with electricity are not our biggest head-ache in this industry, but the threat is always there, and it is one we cannot afford to ignore. That is one good reason why we should always make certain that the earthing system is first class."

"That sounds reasonable enough—but

"That sounds reasonable enough—but how do we put it into practice?"
"First of all, by connecting to earth the casings of all portable tools, transformers, and metal distribution boards—and indeed all metal parts of the distribution system.

The earthing should be tested before the equipment is used, and again at intervals afterwards. I know you will think I am stretching a point here, but I strongly recommend the earthing of the metal reflectors of lamps and the shades used with cargo clusters. In fact, you may have noticed that most of our metal lighting fittings are earthed through a conductor in the supply cable. The earth connection itself must, of course, be sound, and this is really a job for the expert. There is only one way of finding out whether or not the earth is satisfactory, and that is by the earth is satisfactory, and that is by measuring the total resistance of the earth fault circuit—that is, the earth fault loop

Derek blinked. "Go on." he said. "I'm

Derek blinked. "Go on," he said. "I'm still afloat."
"I don't know any more about that," I said. "I got it out of a book somewhere. But there is another safeguard which has been used successfully, and that is the earth leakage protection device which incorporates a small circuit breaker in its system. These ampliances have to be kent incorporates a small circuit breaker in its system. These appliances have to be kept in good order, because otherwise they are liable to fail at the very moment they are liable to fail at the very moment they are needed. There are some other earth proving devices available for use with the larger types of electrically operated plant, one of which automatically isolates the equipment if a fault occurs in any of the earth leads. We'll have a chat about those another time—meanwhile, I have some work to do!"

#### C. AND C.A. OFFER USE OF **ELECTRONIC COMPUTER**

In addition to its service in testing structural models, the Cement and Con-crete Association is now in a position to

crete Association is now in a position to offer the use of an electronic computer. The Association has installed at its research station at Wexham Springs a Ferranti Sirius computer and tape editing equipment. The computer, which is capable of dealing with most of the calculations involved in engineering practice, will be used primarily for processing data for the Association's own research and advisory work. When the machine is not occupied in this way, however, the Association will make it available for use by others at the standard hire charge of £25 per hour for normal work, and at reduced rates for research and development work on problems concerning concrete. No restrictions will apply as to the type of work undertaken, but priority will normally be given to calculations involved in the use of concrete.

Arrangements can also be made for punching and editing tape, and for the use of the tape editing equipment, on a repayment basis.

Arrangements for the use of the com-Arrangements for the use of the computer or for the model-testing service should be made through Mr. R. E. Rowe, Head of Design Research Department, Cement and Concrete Association, Research and Development Division, Wexham Springs, Framewood Road, Stoke Poges, near Slough, Bucks (Telephone: Fulmer 212).

#### CIVIL ENGINEERING FILMS AND MODELS

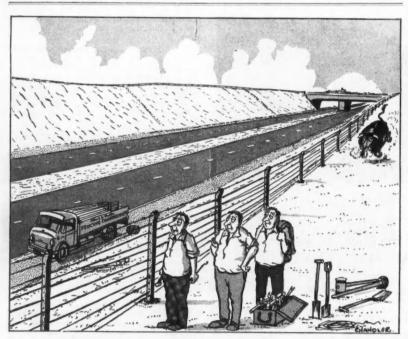
The Federation of Civil Engineering Contractors has prepared an up-to-date list of films and models available from its

The list includes no less than 111 films and 14 models of many of the varied activities of the civil engineering contractactivities of the civil engineering contracting industry, including harbours, roads, bridges, airports, power projects, oil refineries, water supply schemes, sewerage schemes and industrial projects.

The films and models may be borrowed, usually without charge, from the Members concerned.

concerned.

The list itself is obtainable, post free, from the Federation at Romney House. Tufton Street, Westminster, London, S.W.I.



"Well, THAT'S finished!—I reckon anybody would have to be pretty nippy to get over there!"

# 500,000 SQ. FT. OF OFFICES IN 400FT. HIGH FIRM PRICES IN COMMON MANCHESTER BLOCK

### Completion Scheduled Next Year

THE claim to be the tallest building T in Britain is made for the new Co-operative Insurance Society office block in Miller Street, Manchester, which was "topped out" at a recent rooftop ceremony.

rooftop ceremony.

Of steel-framed construction, the tower block will contain some 550,000 sq. ft. of floor space, comprising 25 floors with a five-storey podium and three levels of basement. A contiguous reinforced concrete service tower rises to the full height of 400ft. To construct the building a Jules Weitz G60 tower crane, measuring 456ft. from base to top, is being used.

The project also includes a separate 14-storey, 194ft. high office block with three levels of basement. This block is of reinforced concrete construction and

construction and contains some 176,000 sq. ft. of floor space.

Between the two blocks a conference hall to seat 1,000, having a sprung floor and acoustic control, is under construction. With the exception of With the exception of the service tower, all the buildings are being clad with cur-tain walling, consist-ing of glazing and black anodised alu-minium panels.

The buildings are to be fully air-conditioned, with air filtration, electroair filtration, electro-static precipitation and humidity control. Engineering plant will also include eight fully automatic exfully automatic express passenger lifts, a goods lift, and 10 reversible escalators. A special instalwill be an tic vertical lation automatic vertical chain conveyor for the rapid distribution of documents and mail. The kitchen and cafeteria in the main block will be equipped on most modern lines to serve 2,500 meals over two hours.

Work on the project began in August, 1959, and is due for completion by the middle of next year. The superstructure and a major part of the cladding has now been completed and about 500 men are engaged upon the final phase of the contract which includes a great waiter of which includes a great variety of finishings.

The architects for the development are S. Hay, F.R.I.B.A., chief architect, Man-ester, Co-operative Wholesale Society, chester, Co-operative Wholesale Society, Ltd., in association with Sir John Burnet, Tait and Partners. Engineering services are the responsibility of O. Castick, A.M.I.Mech.E., chief engineer, Manchester, C.W.S., Ltd., and the structural engineer is A. E. Beer, E.R.D., A.C.G.I., M.I.C.E., M.I.Struct.E. John Laing Construction, Ltd., are the main contractors.



The 400ft, high building

#### GLOUCESTERSHIRE ROAD MAINTENANCE

IN a report submitted recently to I Gloucestershire County Council, the county surveyor, Mr. R. A. Downs, states that expenditure on maintenance and minor improvement works had reached about 32 per cent. of the approved estimate by mid-August, and surface dressing in all divisions was nearing completion.

Work continues on the preparation of the contract documents for the Barnwood By-pass for submission to the Ministry in July 1962; the starting date for the contract has now been given by the Ministry as February 1963.

Most of the improvement work on

of the improvement work Most of the improvement work on county roads is still in the "under £10,000" category, says Mr, Downs. Steady progress is being made on a large number of schemes, but land acquisition problems continue to delay certain schemes including the work at Redhill to provide access to the Severn Bridge site for contractors' traffic

'During the past eight months more

than 100 direction signs, mostly of the than 100 direction signs, mostly of the advance type, have been erected to improve, replace and supplement the signing of trunk and classified roads," adds Mr. Downs. "This form of signing is in accordance with Ministry of Transport requirements but is expensive and laborious since each sign must be individually designed and manufactured. There is frequently delay in delivery for this reason. this reason.

#### **Many Compliments**

"While there must inevitably be some criticism in respect of signing in a county containing over 3,000 miles of roads it is generally thought that Gloucestershire is among the leading counties in this respect and many compliments have been received from members of the public and motoring

organisations.

"The work will be continued to absorb the maximum funds that can be made available, in fact more than 100 signs are in course of erection or are on order from manufacturers."

# MARKET

SPEAKING at the half-yearly general meeting of the Derby and District Association of Building Trades Employers, Mr. W. Leake, president of the Midland Federation of Building Trades Employers, said:

"Foreign competitors are more inclined quote firm

prices for a conprices for a con-tract period approaching two years than our own manufacturers and merchants. When merchants. When we eventually enter the Common Market and tariffs are reduced, con-tractors will in-evitably give more than a cursory glance to the terms of suppliers of their member nations, so long as



nations, so long as our manufacturers maintain their W. LEAKE present attitude.

"Not only does the failure of suppliers to price for two years mean they are not contributing towards a stable economy, it means also that they lack confidence in the mean also that they lack confidence in the mean lack and the mean lack themselves as businessmen. Manufac-turers who cannot make a sound appraisal

turers who cannot make a sound appraisal of trends in their own raw materials market and judge their other costs, are to my way of thinking incompetent. "Confronted, such firms will advance reasons why they cannot, but if we as contractors can say to our clients this building will be erected in 24 months and our price is £X then surely suppliers can do the same.
"Both contractors and architects when "Both contractors and architects when

do the same.

"Both contractors, and architects when nominating, should ensure that they deal with sound businessmen. There are in most cases alternative sources of supply and these will increase when we belong to the Common Market."

# £700,000 YACHT MARINA IN POOLE HARBOUR

Trial boreholes are being sunk in Poole Harbour to determine the nature of the subsoil in connection with a scheme for

an 80-acre marina.

The 80 acres will include 40 acres of the harbour area and 40 acres of backfill on which car parks, clubs and other ancillary services will be built. The approximate cost of the harbour and backfill, including jetties, car parks and emergency slipway, but not including buildings and residential development, is £700,000.

The scheme is promoted by the West Sussex Marine Development Co., Ltd., 39 East Street, Chichester. Lewis and Duvivier, 14 Howick Place, London, S.W.I, are the consulting engineers, and St. Aubyn Hubbard, John Turner and Partners, 44 South Street, Chichester, are the architects for the shore developments.

#### WORLD FORD DEALERS MEET IN BRITAIN

From more than 40 countries some 120

From more than 40 countries some 120
Ford main dealers assembled in London
last week for their annual convention.
Other delegates included nearly 100
management, sales and service personnel of
Ford Motor Co., Ltd., Dagenham, and the
Ford Motor Company's international
marketing organisations in the U.S.A.,
Canada, Latin America, Bermuda and Canada, Germany.

Germany.

Principal speakers at the convention were Sir Patrick Hennessy, chairman of Ford Dagenham, and Messrs. P. F. A. Prance, V. Z. Brink and R. J. Conn of Ford International Group Headquarters in the U.S.A. Mr. W. B. Batty, general manager, Ford Dagenham Tractor Group, led the Convention's tractor session in London. London.

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#### FOR THE DIARY

#### Sept. 21

Meeting of the Yorkshire branch of the Contractors' Mechanical Plant Engineers. Visit to Thruscross Reservoir.

Faculty of Architects and Surveyors' weekend study school, Jesus College, Oxford. Sept. 22-24.

Western branch of the Contractors' Mechanical Plant Engineers. Supper dance at Ashton Court County Club.

Ninth annual residential study course of the Institution of Municipal Engineers— South - Western District, at Dillingham House, Ilminster, Somerset, Sept. 26-28.

Heating, Ventilating and Air Conditioning Exhibition, Olympia, London. Sept. 26—

#### Sept. 27

Meeting of the South Wales branch of the Contractors' Mechanical Plant Engineers, Dunraven Arms Hotel, Bridgend, 7.30 p.m.

#### Sept. 28

Annual general meeting of the Housing Centre Trust at 13 Suffolk Street, London, S.W.I. Address—"The Next Five Million Houses," by J. R. James, chief planner, Ministry of Housing and Local Government. Meeting of Sheffield branch of the Institu-tion of Plant Engineers, Grand Hotel, Shef-field. 7.30 p.m. "Industrial Relations" by W. Carron, president, Amalgamated Engineer-ing Union.

Meeting of the Birmingham branch of the Institution of Plant Engineers, Imperial Hotel, Birmingham, 7.30 p.m. "The Planning, Application and Maintenance of Industrial Lighting" by V. Heydon, manager, Lighting Division, G.E.C.

Plant exhibition and demonstration arranged by the North West branch of the Contrac-tors' Mechanical Plant Engineers, Territorial Army Test Ground, Aigburth, Liverpool.

Annual dinner of the Scottish branch of the Institution of Highway Engineers at the Grosvenor Restaurant, Glasgow. Reception 6.30 p.m.

#### Oct. 3

Meeting of the Hants and Sussex branch of the Contractors' Mechanical Plant Engi-neers, Red Lion, Peterfield. 7.30 p.m.

Conference of the Association of Public Lighting Engineers, Scarborough. Oct. 3-6. Meeting of the Manchester and District branch of the Contractors Mechanical Plant Engineers, Woodcourt Hotel, Brooklands Road, Sale. 7.30 p.m.

#### Oct. 4

International Design Congress to be held by the Council of Industrial Design at the Royal Society of Arts, London, Oct. 4-5. Annual conference and exhibition of the National Society for Clean Air, Dome, Brighton, October 4-6.

Meeting of the London branch of the Contractors' Mechanical Plant Engineers. Hendon Way Hotel, Hendon Way, N.W.4. 7.30 p.m.

Convention on "Planning for Traffic" arranged by the Institution of Municipal Engineers, London.

Meeting of the Institution of Structural Engineers, London. Presidential Address.

Annual conference of the Institute of Quarrying, Palace Hotel, Torquay. Oct. 9-13.

Meeting of the Yorkshire branch of the Contractors' Mechanical Plant Engineers. Ladies' Night.

ct. 10

Annual dinner of the Contractors' Plant Association, Dorchester Hotel, London.

Meeting of Manchester branch of the Institution of Plant Engineers, Manchester Literary and Philosophical Society's Rooms, George Street, 7.15 p.m. "The Trends and Progress of Nuclear Power Station Design," by W. G. Busbridge, United Kingdom Atomic Energy Authority. Authority.

#### Oct. 11

Meeting of the Glasgow branch of the Contractors' Mechanical Plant Engineers, More's Hotel, Glasgow.

ct. 18
Forty-sixth International Motor Exhibition,
Earls Court. London. Oct. 18-28.
Meeting of the Reinforced Concrete Association at R.I.B.A., Portland Place, W.I. 6 p.m.
"Tropical Architecture: The Development of
Reinforced Concrete in West Africa," by
E. Maxwell Fry, C.B.E., F.R.I.B.A.

Institution of Annual d Mechanical London. dinner of the Instituteal Engineers, Dorchester

#### Oct. 20

Autumn meeting of the Scottish Branch of the Institution of Municipal Engineers at Stirling. Oct. 20-21.

Meeting of the Midlands branch of the Contractors' Mechanical Plant Engineers, Wilson Arms, Knowle. 7.30 p.m. "Safety Precautions on Building Contracts," by P. H. Bott, C. Bryant and Son, Ltd.
Annual dinner of the Yorkshire Federation of Building Trades Employers. Queens Hotel, Leeds.

Autumn general meeting of the Southern Counties Federation of Building Trades Employers, Connaught Rooms, London. Employers, 10.30 a.m.

Annual dinner of the Merseyside and North Wales branch of the Institution of Plant Engineers, The Blossoms, Chester.

Meeting of the Institution of Mechanical Engineers, 1 Birdcage Walk, Westminster, London, S.W.1. Presidential Address.

National Conference of the Town and Country Planning Association, Church House, Westminster. "Inquiry into Planning," Oct. 25-26.

Meeting of the Birmingham branch of the Institution of Plant Engineers, Imperial Hotel, Birmingham, 7.30 p.m. "High Pressure Hot Water Heating," by P. Marshall and K. J. Luntley.

Annual dinner of the British Road Tar Association, Grosvenor House, London.

Meeting of the London branch of the Institution of Plant Engineers, Royal Society of Arts, 7 p.m. "Tower Cranes—Their Use in Multi-storey Construction," by A. G.

Annual dinner and dance of the Federation of Registered House-Builders at the May Fair Hotel, London, W.1.

Meeting of the London branch of the Con-tractors' Mechanical Plant Engineers, Hendon Way Hotel, Hendon Way, N.W.4. 7.30 p.m.

The House-Builders Conference at the Connaught Rooms, London, W.C.2,

Annual dinner of Mid-Southern branch of the Contractors' Mechanical Plant Engineers, Red Lion Hotel, Henley - on - Thames, Red Lie 7.30 p.m.

Meeting of the Manchester and District branch of the Contractors Mechanical Plant Engineers, Woodcourt Hotel, Brooklands Road, Sale. 7,30 p.m. Institution of Civil Engineers, London. Presidential Address.

Meeting of the Reinforced Concrete Association at Royal Society of Arts, John Adam Street, London, W.C.2. 6 p.m. "Shrinkage and Creep in Concrete," by A. M. Neville, M.C., M.Sc.(Eng.).

#### Nov. 10

Scottish Motor Exhibition, Kelvin Hall, Glasgow. Nov. 10-18,

Dinner dance of the Yorkshire branch of the Contractor's Mechanical Plant Engineers.

Factory Equipment, Heating, Ventilation and Thermal Insulation Exhibition, Earls Court, London, Nov. 13-18. Annual dinner of the Lighthouse Club, Grosvenor House, London.

Building Exhibition, Olympia, London. Nov. 15-29.

Annual banquet of the National Federation of Roofing Contractors, Grosvenor House. London.

#### Nov. 22

Annual general meeting of the National Federation of Roofing Contractors, London.

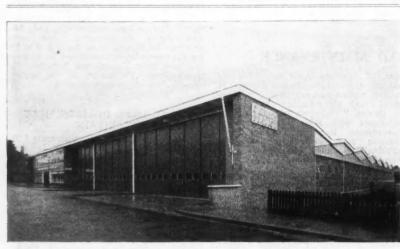
Meeting of the Midlands branch of the Contractors' Mechanical Plant Engineers, Wilson Arms, Knowle. 7.30 p.m. Film and lecture. by R. Bigwood, British Lift Slab, Ltd.

#### Nov. 25

Annual dinner of London branch of the Institution of Plant Engineers, Waldorf Hotel, London.

#### Nov. 28

Mid-Southern branch of the Contractors' Mechanical Plant Engineers, Brains Trust, Grosvenor Hotel, Caversham, Reading.



Extensive use has been made of decorative aggregate panels and aluminium finishing in this new bus station built at Darlington by United Automobile Services, Ltd. The building is of steel frame construction with a low-pitched asbestos roof over part and a flat roof of either aluminium or steel decking over the remainder. Alan A. Briggs, F.R.I.B.A., designed the building in association with F. G. Frizzell, A.R.I.B.A. The general contractors were Walter G. Birch (Harrogate), Ltd.

#### International Construction

# MANGLA DAM WILL BE ONE OF THE LARGEST

## Contract to be Awarded Soon

WORK is due to start next year on the construction of the Mangla Dam project in West Pakistan. As reported previously, international tenders have been invited and a contract is expected to be placed before the end of this year.

of this year.

The scheme is estimated to cost £130m. and will therefore rank as one of the largest civil engineering jobs ever undertaken. Although it cannot be claimed that the main dam is the highest of its type, or contains the greatest volume of material, it is nevertheless, in the work class, certainly amongst the largest half-dozen. Similarly, the power station at Mangla when fully developed will have one of the largest installed capacities for a hydroelectric power station.

The project is situated near the small

electric power station.

The project is situated near the small village of Mangla where the River Jhelum emerges from the Himalayan foothills into the plains of West Pakistan. The present canal system in this part of Pakistan has been developed entirely from river flow without reservoir storage and in consequence irrigation supplies are precarious to the extent that they are subject to seasonal and yearly variation in river flow.

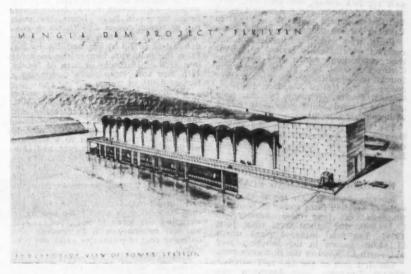
With the Mangla reservoir providing storage, the water available for irrigation in this area will be nearly doubled. An additional and extremely valuable side benefit arising from the scheme will be the production of hydro-electric power.

#### Principal Structures

The principal structures to be built at The principal structures to be built at Mangla are three earth dams of maximum height 370ft., totalling 6½ miles in length and requiring a total quantity of embanking material of 108m. cu. yd. The rate at which this embanking material is placed at one stage of construction will be something like 2m. cu. yd. per month. The reservoir which will be created by these dams will be 40 miles long and 100 square miles in area. Careful arrangements are already in hand to resettle elsewhere the 70,000 people who are at present living in the part of the Jhelum valley

the Niagara Falls or over 30 times the size of the greatest flood ever recorded in the River Thames.

During construction of the main dam the river will be diverted through five large tunnels which are to be built—each 30ft.



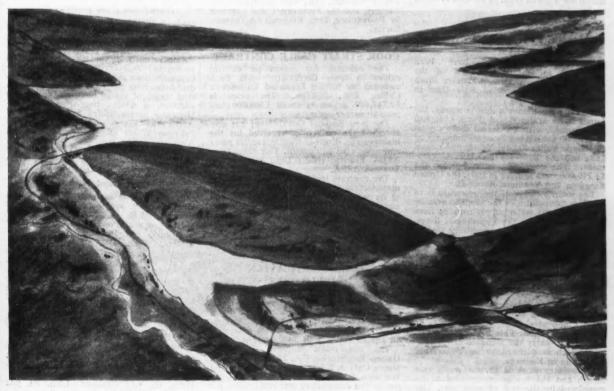
Perspective view of the power station

which will be affected by the filling of the reservoir.

The spillway structure, incorporated in the dam to release flood water, will be capable of passing an exceptionally large flow—over 1m. cu. ft. of water per second. This is over 10 times the normal flow over

in diameter. These tunnels will subse-quently be used to convey water to the turbines in the power station and for in diameter. releasing irrigation water.

Throughout the past 3½ years an intensive study of alternative designs has been (Concluded on next page)



Artist's impression of the dam

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#### INDUS BASIN PROJECT £51m. Aggregates Contract

WHILE international tenders have now been invited for the Mangla Dam—the first major water storage scheme to be constructed under the Indus Basin Probe constructed under the indus Basin Irolect—it was announced last week that a £5\mu. contract has been placed with Gammon Pakistan, Ltd., 5 West Wharf Road, P.O. Box 4740, Karachi, and Pegson, Ltd., Coalville, Leicestershire, for the supply of about 6m. tons of crushed aggregates and the consultance barrages etc. Congate for link canals, barrages, etc., con-nected with the project. Almost £1m. of British equipment will be shipped to Pakistan for the production of the stone.

Firms who wished to tender for the contract were officially invited to submit contract were officially invited to submit their applications earlier this year (The Contract Journal, Feb. 2). On June 8 the Journal published the complete list of com-panies in the United Kingdom, Pakistan, Canada, France, Germany, Austria, Italy and the United States who were issued

with contract documents. The West Pakistan Water and Power Development Authority's consultants for this contract are Tipton and Kalmbach, Inc., Denver, Colorado, U.S.A.

#### RHODESIAN BUILDING PLANS

Barclays Bank D.C.O. report that the value of building plans passed in Southern Rhodesia in June rose sharply to £1,588,000, the highest total since July, 1959. The total included plans worth £1,161,000 passed in the Salisbury area and worth £379,000 in the Bulawayo area.

The first part of the £1.3m. Tshabalala African Township near Bulawayo was recently opened. The Bank state that this is a home-ownership scheme which, it is hoped, will eventually include 2,500 houses consisting of sitting room, dining room, bedroom, kitchen and bathroom.

The British Government are to provide a grant of up to £400,000 in due course towards the completion of the proposed teaching hospital in Salisbury. In the meantime a token grant of £25,000 is being

#### FINANCE FOR £11M. BANGALA DAM

arrangements Financial completed for the construction of the £1,250,000 Bangala Dam, 60 miles south of the recently completed Kyle Dam in Southern Rhodesia.

To raise the money a new company, the To raise the money a new company, the Lundi Basin Water Board (Pvt.), Ltd., had been formed, with a nominal share capital of £25,000 subscribed in equal amounts by the Hippo Valley Estate, McAlpine-Concur, Ltd., and the Southern Rhodesia Government. The company would borrow the £1,250,000 from sources in Italy, the United Window and Southern Phodesia

£1,250,000 from sources in Italy, the United Kingdom and Southern Rhodesia.

The main purpose of the new dam is to promote agriculture in the lowveld area by augmenting the water supply running from the Kyle Dam into the Esquilingwe River, and more particularly to encourage the expansion of sugar and citrus fruit production on the Hippo Valley Estate.

#### £A345,000 CONTRACT FOR FREMANTLE BRIDGE

The Western Australian Government have accepted a tender of £A345,025 to build a new steel-girder railway bridge at North Fremantle. This bridge had been designed to carry the standard-gauge railway which is planned to be built from Kalgoorlie to Kwinana.

Preliminary work is to start early this month and the bridge is expected to be completed by the end of next year. The successful contractors are R. J. Davis Pty, Ltd., of Jolimont.

#### MINERAL POWDER INSULATION FOR TURKISH WATER PIPES

FINE mineral powder, know as Protexulate, which is produced by a patented process has been used for the insulation and protection of buried chilled water and heating pipes servic-ing accommodation blocks attached to the new refinery of Anadolu Tasfiyehanesi Anonim Sirketi at Mersin, Turkey.

The housing site was divided into two The housing site was divided into two sections, each having its own boiler house, From the south boiler house, the main run of trench covers 2,650ft. which contains 2in. by 4in. flow and return pipes descending to 2in by 3in. and 2in. by 2in. From this main run, four entries are made into each of 19 blocks of flats, of 2in. by 1½in. flow and return pipes, comprising a further 830ft. of trench.

The north boiler house similarly serves 16 apartment blocks over a total of 3,000ft. with an additional 430ft. for entries into the blocks.

Trench cutting machines were used to excavate the trenches, cut to a standard width of 24in. on the main runs, and 18in. on the entry sections. The pipes were sited in the trench and supported at intervals of about 14ft. After installing the pipes it was only necessary to make the tervals of about 14ft. After installing the pipes, it was only necessary to pour the Protexulate powder into the trenches to give an all-round covering of 5in., and then back-fill with earth. No lagging or wrapping was given to the pipes, as this was not necessary with Protexulate, and only one coat of protective paint was provided.

Because Protexulate prevents any infil-tration of moisture, the pipes are com-pletely protected and, at the same time, the insulation requirements are met through the k value of 0.912 taken together with the 5in. surround of powder given to the pipes. There was no necessity to con-

pipes. There was no necessity to construct concrete ducts.

The architects were Farmer and Dark, Romney House, Tufton Street, London, S.W.1, and the consulting engineer was A. C. Mann, 79 Gloucester Road, S.W.7. Foster Wheeler, Ltd., were the main constructors and the Protoxyulate was supplied tractors, and the Protexulate was supplied by Protexulate, Ltd., Kingston-on-Thames, Surrey.

#### COOK STRAIT CABLE CONTRACT

The contract for submarine electric cables to cross Cook Strait has been awarded to British Insulated Callender's Cables, Ltd., London. The price is £2,747,400, which is about £400,000 less than an earlier estimate.

The New Zealand Government has also accepted the only offer received for the high-voltage, direct-current converter plant and associated equipment. This came from ASEA Electric (N.Z.) Ltd., representing Swedish ASEA

Swedish ASEA.

The contract includes the designing and manufacture of the equipment, supervision maintenance of the equipment, supervision of its installation and commissioning, and maintenance for three years. The firm also guarantees three years' successful operation of the equipment. The total cost, including freight, will be £6,653,276, nearly £365,000 less than the 1959 estimate.

#### £28M. YUGOSLAVIAN **STEELWORKS**

A preliminary agreement has been reached between the Government of Yugo-slavia and the British consortium, Metal-lurgical Equipment Export, for the construction of a £28 million steelworks with

an annual capacity of 330,000 tons.

The consortium includes Davy and United Engineering Co., Head Wrightson, Simon-Carves, E.F.C.O., Joseph Parks, and Wellman Smith Owen. With other companies the consortium was responsible for the £120 million Durgapur Steelworks in

#### HONG KONG HOUSING ESTATE TO COST £400,000

THE Hong Kong Housing Authority is to develop a site at Kwun Tong, the rapidly growing centre of light industry on the eastern shore of Kowloon Bay, as a housing estate at a capital cost of £415,000.

The site consists of some four acres of levelled ground on a plateau and about 2.3 acres, mostly irregularly shaped steep gul-lies, on a lower level.

The Housing Authority states: "This lower section will require extensive engineering works before it can be made suitable for building."

The first stage of the housing scheme The first stage of the housing scheme concerns the upper level and involves the construction of 864 self-contained fiats to accommodate about 5,264 people, as well as 16 shops, stores and an estate office. Planning of the second phase of the building programme has not yet started.

The entire capital cost of the project will be met from the Authority's own resources. It will be the second scheme to be designed by the Authority's own architectural staff.

#### U.S. FIRM TO FIT PERKINS **ENGINES**

The six-cylinder, direct injection, 112 b.h.p. Perkins 6.354 engine will be offered by The White Motor Company, Cleveland, Ohio, as optional first equipment in the United States in their new 102in, wheelbase White Compact trucks. Producing 120-h.p. at 2,800 r.p.m. at SAE ratings, the six-cylinder in-line Perkins diesel engine has a piston displacement of 354 cu. in., a compression ratio of 16 to 1 and is of the four cycle design. It is a direct injection engine with toroi-

of 16 to 1 and is of the four cycle design. It is a direct injection engine with toroidal chambers in the pistons. Total weight of the engine including flywheel, housing, standard accessories such as electrical equipment and either vacuum pump or an air compressor is approximately 980 pounds. Maximum gross torque is 260 pounds feet. pounds. Man pounds feet.

The diesel installation, developed jointly by White and Perkins, compares favourably in size and weight with a U.S. petrol engine of similar power.

#### (Concluded from previous page)

made in the offices of the consulting engi-

made in the offices of the consulting engineers to find the most economic arrangement for the scheme—consistent with safety and operating requirements.

Concurrently at the site, topographical, geological, hydrological and seismic surveys have been proceeding; 600 exploratory drill holes have been put down and a 600ft. trial length of tunnel has been driven. In addition, a 636ft. three-span Callender-Hamilton access bridge has been erected across the River Jhelum by the West Pakistan Water and Power Development Authority. The steelwork was manufactured by Painter Bros., Ltd., Hereford, and supplied by British Insulated Callender's Construction Co., Ltd., London.

Facts and Figures

#### Facts and Figures

The consulting engineers for the Mangla Dam Project are Binnie, Deacon and Gourley, M.M. Cons. E., of London, in association with Preece, Cardew and Rideronational of Chicago, U.S.A.

The project will be the first major water storage scheme to be constructed under the constructed under

the Indus Basin Settlement Plan. The main structures to be built are: Three earth dams, the spillway structure, five tunnels, the power station, the tailrace and three mile long care!

three-mile long canal.

The power station will have an ultimate installed capacity of 1,000-MW. Initially 300-MW will be installed.

Total quantities of work and materials are as follows: Excavation—95m. cu. yd.; tunnelling—9,500ft. of 30ft. diameter concrete-lined tunnels; embanking materials— 108m. cu. yd.; concrete—1.8m. cu. yd.; cement—320,000 tons; reinforcing steel— 39,000 tons.

#### Trade and Company News

# MERCEDES-BENZ UNIMOG ON SALE IN U.K. Any-Conditions Tractor is also Mobile Power Plant

MARKING its introduction on to the British market by Mercedes-Benz (Great Britain), Ltd., Great West Road, Brentford, Middlesex, a demonstration of the Unimog all-purpose wheeled tractor was held last week at Beaulieu, near Southampton.

With three power drives, consisting of a front power take-off, a rear power take-off, and a side belt pulley, the Unimog can be quickly fitted with any of more than 250 temporary attachments which give the vehicle applications in agriculture, civil engineering, forestry, quarrying, and municipal services. At the demonstration the cipal services. At the demonstration the tractor was shown, among other operations, hauling a 25-ton load of logs on a trailer; driving a compressor and a generator for hand tools; as a loading shovel, a bull-dozer, a lime-spreader, and a mobile platform for an earth borer.

The demonstration concluded with ex-

amples of the vehicle's versatile cross-country performance, and in this manner the Unimog was shown crossing a pile of logs; ascending and descending steep earth banks; and moving through mud and water.

#### Differential Lock

A feature of the machine, which gives it maximum traction on greasy or icy surfaces, and enables it, the manufacturers claim, to negotiate gradients of 1 in 1.6, is the differential lock provided on both front and rear axles. With this lock engaged, all four wheels are connected rigidly, and one wheel will utilise the entire power of the engine when the other three have insufficient adherence.

Other features include four-wheel drive, coil springs with high deflection on both axles, front and rear power lifts, synchromesh six-speed transmission, and hub reduction gears. A feature of the machine, which gives

reduction gears.
Powered by a four-cylinder Mercedes-

Benz OM 636-V1 diesel engine developing 35-h.p. at 2,550 r.p.m., the tractor has a top road speed of 33 m.p.h. The Daimlertop road speed of 33 m.p.h. The Daimler-Benz gearbox, operating through a Fichtel and Sachs dry plate clutch, has six forward gears and two reverse, giving 2.2 m.p.h. in first gear (forward) and 1.5 m.p.h. in first gear (reverse) and 3.1 m.p.h. in second gear reverse). The front axle can be disengaged from the four-wheel drive.

#### Three Models

Of the three different available models, Of the three different available models, the 411-117, with all-steel cab and a wheelbase of 83.4in., is probably the most suitable for municipal work, civil engineering, and industry. On this model the width of track, front and rear, is 53 in.; ground clearance below the differential—15in.; overall length—13ft. lin.; overall height—6ft. 8in.; overall width—5ft. 4in.; and the auxiliary loading platform measures about 57in. by 59in. The minimum turning circle is 14ft. 1lin.

auxiliary loading platform measures about 57in. by 59in. The minimum turning circle is 14ft. 11in.

The Unimog is manufactured by Daimler-Benz in Germany, and the basic price of the model 411-112, with all-weather cab, is £1,495. The model 411-117. with steel cab, costs £1,620.

#### CLIMBING CRANE WITH REMOTE CONTROL

T. (London), Ltd., 27 Ashley Place, C. I. (London), Ltd., 2/ Ashley Place, London, S.W.I, are now marketing the S. and M. climbing crane which is worked by remote control and is designed for use in the erection of buildings with a central

The mast is only 40ft. high, the building The mast is only 40ft. high, the building itself being used to raise the crane as building height progresses. No "top' man is needed as remote control allows the crane to be worked from ground level. This allows the operator to move freely about the site and do his own "spotting." Load placing is by means of a Micro speed unit which gives precise control over lower.

Load placing is by means of a Micro speed unit which gives precise control over lowering and lifting.

All electrical gear is placed in weather-proof housing. Travelling and slewing are powered by separate motors which can be operated simultaneously or individually. Hoisting speeds are 158ft, a minute with four lines and 79ft, a minute with four lines. Maximum loads can be lifted or lowered at any point of the full slewing circle. The maximum radius is 6ft.

When working with four lines the loads become 2½ tons from 6ft, to 41ft, and from there on 1½ tons. The mast dimensions are 31½in, x 31½in., the weight is 183cwt., and the counter ballast is 43cwt.



Unimog 411-112 with all-weather cab, fitted with bulldozer blade (left), and 411-117 with steel cab (right)

#### PARSONS LADDER TYPE TRENCHLINER

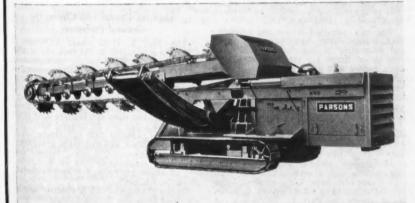
A NEW ladder type trenchliner for cutting an 18in. to 48in. trench up to 15ft. deep has been announced by the Parsons Co., Newton, Iowa, a

division of Koehring Co.

Designated the model 255, it has a low centre of gravity, being only 9ft. 2in. high. It has hydraulic steering and bucket line clutches giving quick response to depth variations and allowing the machine to held close grade. hold close grade tolerances.

The bucket line is hydraulically adjusted and the machine has 60 digging speeds and the machine has 60 digging special from 3.9in. to 140.2in. a minute and three conveyor belt speeds of 277ft., 378ft. and 661ft. a minute. The tractor type crawlers have 16in. wide shoes giving a bearing area of 7.8 p.s.i.

The frame is of all-steel welded construction and the machine incorporates a spring-cushioned, cutting blade action bucket cleaner.



Parsons 255 Trenchliner

#### DUMPER DRAIN-OFF TIME **ELIMINATED**

To avoid the usual waste of time for dumpers to drain-off when loaded with ballast from wet workings, Hoveringham Gravels, Ltd., Nottingham, have had modifications made to the Aveling-Barford SL270 13½-ton dumper which they are now using.

using.

These modifications consist of holes drilled through the floor of the dumper with tubes passed through. The use of the tubes permits the water to drain freely from the material as it is being transported from the face to the plant. The tubes protect the hardwood sandwich floor and may be made to any length or shape required in order to avoid water dripping

on the dumper's machanism.

The mere drilling of holes would be unsatisfactory, the water not only affecting the hardwood, but also dripping on the linkage, axle or brake drums.

#### PRESTON PLANT HIRE

Preston Plant Hire, Ltd.. Stone Bridge Preston Plant Hire, Ltd.. Stone Bridge Mill, Kestor Lane, Longbridge, near Preston, has recently been formed under the managing directorship of Mr. D. J. Ryan, with Mr. A. J. McHale as sales directors.

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#### Trade and Company News

# CHESHIRE EARTH BORER MOUNTED ON MUSKEG CARRIER

REPRESENTATIVES of interested organisations recently attended a demonstration, given by Cheshire Engineering Co., Ltd., Yorktown Works, Camberley, Surrey, of a Cheshire Model HD earth borer mounted as an integral part of a Muskeg S.62 tracked carrier.

part of a Muskeg S.62 tracked carrier. The modified Muskeg carrier is powered by a six-cylinder Chrysler petrol engine developing 150 b.h.p. at 3,400 r.p.m., and is equipped with a three-forward speed and one-reverse speed transmission operating through a single disc dry clutch. Tracks, which are each 28in. wide, are composed of endless rubber belts and fabric reinforced with steel cable, and steel cross-links. The drive sprocket is also

fabric reinforced with steel cable, and steel cross-links. The drive sprocket is also made of rubber reinforced with fabric.

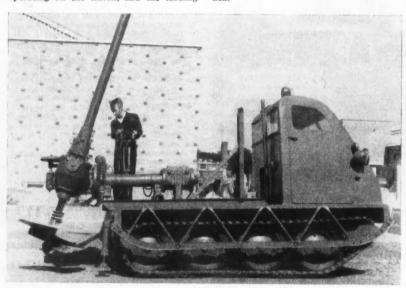
Dimensions of the basic carrier are as follows: Overall length, 15ft. 3in.; width, 7ft. 3in.; height, 7ft. 4in.; weight, 7,550lb.; and ground bearing area, 2,200 sq. in. Steering is by lever-operated brakes operating on the tracks, and the turning

radius is 15ft. The maximum speed is 16 m.p.h.

The power take-off for the earth borer from the transfer box of the carrier to a 2: 1 reduction reversing gearbox, and then backwards into the borer drive. Two hydraulically operated rear legs are pro-vided on the machine for stability.

During the demonstration the borer was quickly set up to sink two bores in the sandy soil at varying speeds. After the auger had been shown at work, the borer was positioned in a few seconds for travelling, and the versatility of the Muskeg as a vehicle for use on all types of ground and contours was demonstrated.

The machine shown has been ordered for military purposes by the Austrian Army, Rolba Co., Ltd., 88 Rochester Row, London, S.W.1, are the U.K. agents for the Muskeg range, which is manufactured in Canada. The earth borer is the standard HD model of Cheshire Engineering Co.,



#### The carrier-mounted borer

#### **BRITISH STANDARDS**

WHERE electrical equipment is used in which the development of a fault could give rise to the risk of electric shock or fire (e.g. in hospital operating theatres), it is essential that the rubber flooring, while being sufficiently conducting to disperse static charges, should also have sufficient resistance to limit to a safe value any leakage current from the electrical installation or apparatus through the floor to earth.

Consequently rubber flooring for this field of application must have a resistance lying within a prescribed range with both the upper and lower limits clearly defined. Material with these electrical characteristics is designated "anti-static" and forms the subject of British Standard 3398.

the subject of British Standard 3398.

In some locations (e.g. buildings used for the manufacture of certain explosives) a predominant requirement is the provisior of a comparatively low-resistance dischargpath to earth and where special measures are taken to eliminate the possibility of electric shock and fire by placing wiring and controls outside the zone of risk and where the use of portable electric equipment and flexible connections is prohibited,

an upper limit is placed on the maximum permitted electrical resistance of the floor ing but there is no lower limit Rubber flooring with these electrical characteristics is designated "electrically conducting" and is covered by a companies standard (published in 1959)—B.S.3187.

The new standard covers the composition, workmanship, dimensions and physical properties of the flooring, and also lays down limits for electrical resistance both before and after laying. Advice is given on the electrical bonding of antistatic rubber flooring, Price 4s. each.

#### Zinc Coatings on Iron and Steel Articles

The revised edition of B.S.729 has been divided into two parts to cover hot dip galvanized coatings and sherardized coatings respectively.

The earlier standard specified visual examination and Preece copper sulphate dip continuity test for coatings. The revised standard (B.S.729: 1961) introduces requirements, in Part 1, for weight of coatings as well, giving three alternative methods of determination, Guidance is

#### NEW TRUCK RANGE BY LEYLAND

A NEW and more powerful range of 7-8 ton Comet diesel trucks, including four-wheel-drive models, is now being produced by Leyland Motors, Ltd., Leyland, Lancs.

Equipped with the 110 h.p. Leyland Power-Plus 0.370 diesel engine, announced at the beginning of this month, the new range consists of three haulage models and range consists of three natinge models and a tipper with gross ratings of 12 tons, and two tractor models with gross train weights of 18 tons. Two of the haulage chassis and the tipper model are also available as 4 x 4 models.

The new Comets have been re-designated by adding a number 10 to each particular type, i... the CS3.1R and L haulage chassis now become CS3.11R and L models. Apart from the new engine and a few modifications, they retain all other units used on the present models.

The 0.370 power unit has a net installed b.h.p. of 110 at 2,400 r.p.m. It is a six-cylinder unit with a bore of 4.07in. and stroke of 4.75in.. giving it a capacity of

cylinder unit with a bore of 4.07in, and stroke of 4.75in. giving it a capacity of 6.075 litres. Maximum net torque is 272lb, ft. at 1,600 r.p.m., as against the previous 0.350 diesel's 255lb. ft. at 1,400 r.p.m.

Other modifications consist of the fitment of a 14in. hydraulically-operated clutch and crosswise silencer and exhaust system, as fitted to Super Comet chassis. The two tractor models have a 36 gallon pressed type fuel tank in place of the present 33-gallon circular tank, standard fuel tanks on other models being 24-gallon pressed types, with alternatives of 36- or 48-gallon capacity types.

The trucks are equipped with the allsteel Leyland Vista-Vue cab, five-speed gearbox and power-boosted hydraulic brakes. There is a choice of three rear axles on the 4 x 2 haulage and tipper chassis, comprising a standard single-speed hub-reduction unit, or two two-speed axles with Eaton driving heads and electrically-operated change speed.

Four-wheel-drive conversions are being carried out by All Wheel Drive, Ltd., who fit their specially designed front axle which embodies a Leyland differential unit with the same 6.16 to 1 ratio as the single-speed

fit their specially designed front axle which embodies a Leyland differential unit with the same 6.16 to 1 ratio as the single-speed Leyland rear axles. Standard transmission is modified to incorporate a specially developed two-speed auxiliary gearbox. The 4 x 4 models are equipped with 10.00-20 12-ply "Trakgrip" tyres, and when completed are lin. longer than corresponding 4 x 2 models. Maximum gross vehicle loading for "on road" operating is 240cwt, and for continuous cross-country running is 190cwt. 190cwt.

given on threaded work and an accepted

procedure indicated.

In Part 2, visual examination and the on Part 2, visual examination and the copper sulphate dip test are alone specified. Again, recommendations for threaded work are included. Part 1, price 4s. each, Part 2, price 3s. each.

#### **Abrasive Papers and Cloths for General Purposes**

The 9in. x 11in. sheet (230mm. x 280mm.) is specified in the recently revised edition of B.S. 871 dealing with abrasive papers and cloths for general purposes.

The publication (B.S. 871: 1961), in which the figures for grading and tensile strength have been revised, covers emery cloth, glass cloth, glass paper and sheet flint paper, but does not include flint cloth which has fallen out of general use.

A metal removal test for emery cloth is now described, and minimum acceptance

a metal removal test for energy classis is now described, and minimum acceptance values are given. To assist buyers and suppliers, recommendations on the ordering of these products are also included. Price 7s. 6d. each.

Copies of these British Standards may be obtained from the British Standards Insti-

obtained from the British Standards Insti-tution, Sales Branch, 2 Park Street, London, W.1.

Trade and Company News

# LIFT TRUCKS HANDLE BLOCKS FOR DYMCHURCH SEA WALL

THE special concrete facing blocks needed for a new length of sea wall being constructed at Dymchurch, Kent, are being cast in a yard set up by the contractors on the Coast Road between

contractors on the Coast Road between pymchurch and Hythe.

Of a gap-graded mix, the blocks weigh about 2½cwt. each and measure about 14in. square. Casting is done by simply pouring directly into metal moulds each holding four blocks.

This method presented the problem of how to handle the moulds and blocks after pouring, how to take the mould from the block after it had set, and how to lift, turn through 180 degrees and stack the blocks after hardening so that they were ready for laying.

The answer was provided by the use of

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heavy duty lift trucks. Two Hyster Challenger YE40 diesel lift trucks, each with a lifting capacity of 4,000lb. at 24in. load centres, were supplied by Fred Myers,

Ltd.

One is employed in lifting the hardened blocks, turning them through 180 degrees and stacking ready for laying. For this purpose the truck is equipped with a revolving load grab with wooden faced arms. This attachment facilitates the gripping, lifting and turning of four blocks at a time; to allow for their taper a wooden spacer is inserted between the centre blocks. In initial trials rubber-faced arms were used, but these were found to tear

The other machine is employed in taking the blocks in their mould from the

mixer and when set lifting the mould from them and taking it to be cleaned. It also returns the pans and moulds to the con-veyor of the mixing plant. Setting takes about one hour, and hardening takes about one hour, and hardening takes about six days.

The £430,000 scheme for the reconstruc-

The £430,000 scheme for the reconstruction of the Dymchurch sea wall is being carried out by Holland & Hannen and Cubitts (Great Britain), Ltd., for the Kent River Board. It is under the direction of the Board's chief engineer, Mr. J. I. Taylor, M.B.E., B.Sc., M.I.C.E., M.I.W.E., and involves the re-forming of the profile of the existing apron, with mass concrete fill, extending the wall seawards for about 19ft. making the total width of the apron about 80ft., and providing a 15ft, wide roadway on top of the wall.

The work is being done for about a mile of the wall's length between Grand Redoubt and Willop Sluice and the design used will not only reduce wave action but further protect some 60,000 acres of Romney Marsh farm land. About 150,000 facing blocks are required.



Radical differences to the cost of running a business are forecast in a review of the computer industry which appears as an introduction to the catalogue of the Electronic Computer Exhibition which will be held at Olympia, London, from October 3-12.

"The tempo at which a company works depends on how quickly management gets its reports, and integrated data processing—which modern computers make feasible—cuts down the time required from weeks

cuts down the time required from weeks

cuts down the time required from weeks to days.

"It is at this moment, when integration is planned, that the new concepts in management control begin to appear. Systems that will throw up "exception reports," enable lower stocks to be carried, gear production to sales, and provide sales analyses within hours of the last sale being clinched, will give managers more control over their business, and more time to make decisions. decisions.

"This concept is being increasingly grasped, and during the next five years will make radical differences to both the cost of running a business and the way it is managed." managed.

managed."

Fifty-three exhibitors are taking part in this exhibition, which is the second the industry has held. At the first, in 1958, a typical computer could perform about 3,500 additions per second. Performances now have improved to more than 47,000 addition per second to more than 47,000 additions per second the second additions per second.



Lift truck with revolving load grab lifting and turning hardened blocks before stacking

#### ALL-HYDRAULIC VIBRATORY ROLLER

AN all-hydraulic 12 cwt, vibratory roller said to handle with the smoothness of a motor car has been announced by C. T. (London), Ltd., 27 Ashley Place, London, S.W.1. It is diesel powered and its specification in cludes a hydraulic goarbax clutch and cludes a hydraulic gearbox, clutch and brakes.

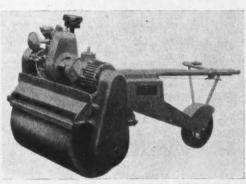
The low pressure gearbox has been designed for both the forward and reverse drives of the roller. All movements, such as neutral, clutch

control, forward and reverse drives, speed variations and braking are carried out by a rotary control at the end of the steering arm.

The smoothness of hydraulic drive allows instandegree slope and, combined with the speed variations, gives easy manoeuvrability when working in restricted spaces.

At the end of the tail frame a flat rubber-tyred wheel is fitted. This reduces operating fatigue by taking off the operator's arms the reaction from forward and reverse drives.

The vibratory rolling is produced by a shaft running through the inside of the cylinder which carries off-set vibratory weights. Transmission is of duplex chain type and has the advantage of a positive drive between hydraulic gearbox and cylinder which obviates slipping. Total weight of the machine is 12cwt. The dimensions are: Width of cylinder, 2ft. 7½in.; overall length, 8ft. 2½in.; overall width, 3ft, 3½in.; overall height, 3ft. 6½in.



C.T. hydraulic vibratory roller

# MERCIA CONCRETE GARAGE RANGE

Because of improved manufacturing Because of improved manufacturing techniques, a new prefabricated concrete garage has been introduced by Ernest Batley, Ltd., Holbrooks, Coventry, at a price claimed to be lower than for other

garages of comparable size.

Called the Mercia, the new garage is based on the firm's Panelok quick-fixing method, giving complete rigidity of wall joints and allowing interchangeability of all units. The asbestos roof is supported by steel trusses.

by steel trusses.

Doors can be either of the "up and over" type or side-hinged, and the exterior of the structure is finished in a shiplap design. Prices start, with an internal width of 9ft, 6in, and a length of 12ft, 9in., at £67.

#### BRISTOL PNEUMATIC'S EXPORT ORDERS

Rapid expansion of their export business is reported by Bristol Pneumatic Tools, Ltd., Bristol, whose range of air compressors is now being sold in seven additional overseas markets. Orders from 24 countries have been booked since the beginning of the year and exports to Europe, the Middle East and Far East have been increased by 25 per cent.

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#### Trade and Company News

#### **NEW COMPANIES**

The undermentioned particulars of new ompanies recently registered are taken from the daily register compiled by Jordan and Sons, Ltd., company registration agents, 116 Chancery Lane, London, W.C.2:—

W.C.2:—
Hall Heath and Co. (Widnes), Ltd., builders, £100. Directors: Martin J. Keane, 106 Blundell Road, Widnes; John E. Heath, 19a Prescot Road, Widnes; William Hall, 4 Eastway, Widnes.
Porbert (Builders), Ltd. £2,000. Directors: Griff Probert and Mrs. Bertha Probert, The Bungalow, Church Lane, Letwell, near Worksop, Notts.

Moore and Kilvert Ltd. Rosedene. Sandy

Bungalow, Church Lane, Schop, Notts.

Moore and Kilvert, Ltd., Rosedene, Sandy Lane, Wildmoor, near Bromsgrove, Worcs., cement. £1,000. Directors: Mrs. Sarah D. Kilvert and Stanley R. Kilvert, Rosedene, Sandy Lane, Wildmoor, near Bromsgrove, Worcs.; Gerald S. Kilvert, Gledhow, 124 Stourbridge Road, Fairfield, Bromsgrove.

Worcs.; Gerald S. Kilvert, Gledhow, 124 Stourbridge Road, Fairfield, Bromsgrove Worcs. F. Wood (Leeds), Ltd., builders. £100. Directors: Fred Wood and Audrey Wood, 27 Craven Road, Woodhouse, Leeds, 6. George F. Brown (Building Supplies), Ltd. £100. Directors: George F. Brown and Mrs. Hetty W. Brown, 1 Milton Street, Northamp-

George F. Brown and Mrs. Hetty W. Brown, 1 Milton Street, Northampton.

J. A. Baron, Ltd., 65 Abbotsbury Road, Broadstone, Dorset, road builders. £1,000. Directors: to be appointed by subscribers. Subscribers: Shirley Hart and Averill Hart, Imperial House, Kingsway, W.C.2.

G. Skipper (Building Contractors), Ltd., 644 Ringwood Road, Parkestone, Poole, Dorset, £500. Directors: to be appointed by subscribers, Subscribers: Shirley Hart and Averill Hart, Imperial House, Kingsway, W.C.2.

Hickie and Lewis, Ltd., 6 Liverpool Terrace, Worthing, builders, £1,000. Directors: Charles H. W. Hickie and Dorothy T. Hickie, 30 Offington Lane, Worthing, Ronald Lewis, 22 Bridge Road, Worthing.

Montgomery and Co., Ltd., 3 Kennet Wharf Lane, Upper Thames Street, E.C.4, builders, £500. Directors: Kenneth A. Montgomery, 2 Hampton Pier Avenue, Herne Bay; Horace A. Whitaker, 96 Mayfield Avenue, N.12. Lester Hardell, Ltd., 52 Bradmore Way, Old Coulsdon, Surrey, civil, mechanical and general engineeers, £1,000. Directors: Lewis L. Arundel, 52 Bradmore Way, Old Coulsdon, Surrey; George W. Harris, 352 Garth Road, Morden, Surrey, and Co., Ltd., Station Approach, Sidcup, Kent, builders, £500. Directors: Ronald F. Semark and Mrs. B. H. Semark, 16 Stanhope Road, Sidcup, Kent. C. B. Round (Roadmakers), Ltd., 34 Windmill End, Netherton, Dudley; Walter W. Round, 46 Worcester Road, Nesterlon, Dudley.

Taylor and Moore (Builders), Ltd., 57-63 West Road, Westeliff-on-Sea, £5,000. Directors-John T. Taylor, 116 Prittlewell Chase, Westeliff-on-Sea; Leonard T. Robinson, 103 Hainault Avenue, Westeliff-on-Sea.

Hughie Boyle and Co., Ltd., 12 Roseville Avenue, Leeds, 8, builders. £1,000. Directors: Hughie Boyle and Anna M. Boyle, 12 Roseville Avenue, Leeds, 8.

Mack and Lawler, (Builders), Ltd., 138 Millgate, Selby, Yorks. £2,000. Directors: Peter McManaman and Mrs. S. McManaman, 138 Millgate, Selby.

Massey and Quinn (Milnrow) Ltd., 87 Grove Lane, Timperley, Ches., builders. £3,000. Directors: Kenneth Massey, Barnfield Cottage, Wicker Lane, Hale, Barns; George Quinn, 23 Hawarden Road, Altrincham.

63,000. Directors: Kenneth Massey, Barnfield Cottage, Wicker Lane, Hale, Barns; George Quinn, 23 Hawarden Road, Altrincham.

Camus (Great Britain), Ltd. To exercise or turn to account in the United Kingdom and the Republic of Eire the industrial processes, methods and inventions for the construction of houses and erections in accordance with the Raymond Camus building system developed by Raymond Camus et Cie, Ingenieurs, constructeurs. Societe Anonyme of Paris, etc. £100. Directors to be appointed by subscribers. Subscribers: F. C. Hall, 13 Durban Road, S.E.27 (clerk); L. I. Phillips, 1 Netley Road, Ilford (clerk).

Alf Bennett and Sons (Builders), Ltd., 12 Uplands Avenue, Willenhall, Staffs. £2,000. Directors: Alfred Bennett and Clara Bennett, 12 Uplands Avenue, Willenhall.

Richardson's (Wath), Ltd., 12a South Parade, Doncaster, builders. £1,000. Directors: Mrs. Joyce Richardson, 43 Fitzwilliam Avenue, Wath - upon - Dearne; Geoffrey Richardson, Norham House, Park Lane, Blaxton, near Doncaster.

D. T. Trowbridge (Builders), Ltd., Red Lion Works, Greenleaze, Knowle, Bristol, 4. £3,000. Directors: Desmond T. Trowbridge and Doreen E. E. Trowbridge, 43a Greenleaze, Knowle, Bristol, 4. Abbey Portable Buildings, Ltd., 35 Millmount Road, Sheffield, 8; £1,500. Permanent directors: Horace Cooke, 35 Millmount Road, Sheffield, 8; Donald E. Hill, 371 Hollinsend Road, Sheffield, 12.

Barfoot and Powell, Ltd., 15 Kathleen Road, Sholing, Southampton, builders, £1,000. Directors: Grove and Fowell, 15 Kathleen Road, Sholing, Southampton, Dennis G. Powell and Brenda Powell, 15 Kathleen Road, Sholing, Southampton, Clifford Bros, (Civil Engineering Contractors), Ltd., 106 High Street, Harrow on the Hill, £100. Directors: Wm. Clifford, 31 Risingholme Road, Weddstone; Michael Clifford, 7 Bengarth Drive, Harrow Weald; Jeremiah Clifford.

R. L. Wade and Son, Ltd., builders, £5,000. Directors: Robert L. Wade, 66 Front Street, St. Helens, Bishop Auckland; Lilian Wade, address not stated.

D. Holmes and Partners, Ltd., Chart Road, Ashfo

#### PORTABLE EMERGENCY LIGHTING EQUIPMENT

A UTOMATIC emergency lighting is provided immediately on a mains A provided immediately on a mains failure by a new portable self-contained unit being produced by Chloride Batteries, Ltd., Exide Works, Clifton Junction, Manchester.

Known as Exide Keepalite "P," the equipment is designed for use in places where permanent emergency lighting schemes are impracticable. It merely plugs in to any power point and no special wiring is required.

The unit is self-contained in a sheet steel container, the battery and charger being housed in separate compartments. Fitted on top is a swivel-mounted lamp which is



Exide Keepalite P emergency lighting equipment

automatically switched on by a relay should the A.C. mains supply fail. An on/off switch is mounted on the front and the unit is normally left connected to the mains supply, a small neon indicator lamp showing that the mains supply to the lamp is healthy. Normally fitted with a 36-watt bulb to give 3½ hours' emergency light, the equipment will provide 1½ hours' stand-by lighting when two bulbs, not exceeding 60 watts in all, are used. It is suitable for A.C. mains 200/250 volts, 40/60 cycles.

The Exide battery, designed for use on

A.C. mains 200/250 volts, 40/60 cycles. The Exide battery, designed for use on trickle charge, comprises a 12-volt assembly of two 6-volt units type 3CB5, each with a capacity of 12.5 Ah, at the 10-hour rate. Each battery is assembled in a three-compartment container moulded in translucent polystyrene. At average room temperature topping up is only necessary two or three times per year and maintenance is negligible.

#### SAFETY ROLLER GRIP

For easier handling of oxygen and acetylene bottles, Chairman, Ltd., Queensway Trading Estate, Leamington Spa, have introduced a further "safety" product to their range of handling equipment—the "roller grip."

The reversible grip, it is stated, fits the valve of the bottle (round recess for oxygen, hexagon recess for acetylene) allowing greater manoeuvreability and eliminating changing grip with each turn

eliminating changing grip with each turn of bottle.

A wall clip is provided for "parking" conveniently the Roller Grip, which weights 80z., and is priced 25s. net, delivered.

#### PLASTIC FLOOR COVERING

Marleyflor Consort 70 is the name given to a new heavy grade of sheet vinyl floor covering being produced by the Marley Group, Sevenoaks, Kent, for commercial use. It has a clear vinyl facing twice the thickness of the domestic grade and retails at 19s per co. vd. at 19s. per sq. yd.



The Swedish company, Bolinder-Munktell, Eskilstuna, have recently delivered 27 road graders VHK100 to French Guinea. The order was obtained by the Bolinder-Munktell subsidiary in Paris in keen competition with road grader manufacturers all over the world.

The photograph shows two of the graders

# Gurrent **Constructional** Activities

**PROJECTS** CONTRACTS **AWARDS** 

THIS editorial feature provides readers with a comprehensive news service covering forthcoming private and public construction work. Commencing on this page information is given concerning future projects followed by details of tenders being invited. In the third section will be found news of tenders recommended for acceptance, tenders accepted and con-tracts awarded. Attention is also drawn to the advertisements covering contracts and appointments appearing in the front part of the Journal.

#### **BUILDING AND DECORATING**

(See also Housing Schemes)

(See also Housing Schemes)

Alnwick, Northumb. — United Automobile Services, Ltd., Darlington, are to erect a new bus station at Clayport Street.

R.D.C. are seeking planning permission for the erection of public conveniences at Recreation Lane, Felton.

Armagh.—Munce and Kennedy, University Street, Belfast, are the architects for a proposed swimming pool, for City Council.

Aylesbury, Bucks.—B.C. recommended to invite tenders, subject to Ministry approval, scheme for extension work at the cemetery. Estimated cost £11,818.

Barnsley, Yorks.—Sheffield Regional Hos-

Barnsley, Yorks.—Sheffield Regional Hos-ital Board recommended to appoint Mercer and Miller, 10 Manchester Square, London, V.I., as quantity surveyors for development t St. Helen's Hospital.

Billingham-on-Tees, Dur. — U.D.C. propose the erection of a second shopping block at Town Square. The architects are Elder and Lester, Midland Bank Chambers, Town Square,

Lester, Midland Bank Chambers, Town Square, Billingham. Plans have been approved in principle, and no contracts have yet been arranged. Estimated cost £100,314.

Blandford, Dorset.—B.C. recommended to approve, subject to conditions, plans for the erection of 23 houses on land at St. Leonards House, Wimborne Road, for E. M. Cowley, c/o E. U. Chesterton, architect, The Studio, Moneys Yard, London, N.W.3.

B.C. recommended to approve C.C.'s scheme for the erection of a clinic at Salisbury Street.

Boston, Lines.—Sheffield Regional Hospital Boston, Lines.—Sheffield Regional Hospital Board recommended to appoint Kerr Sherwin, 38 Bedford Place, London, W.C.I., as quantity surveyors for improvements to sanitary facilities at the General Hospital.

Bridgnorth, Salop. — B.C. recommended to prepare scheme for the provision of swimming and recreational facilities at the bath site on the riverside.

Bristol.—City Council recommended to approve in principle scheme for the erection of a museum and art gallery at Wine Street; apply for sanction to borrow £2,000 for the provision and improvement of public conveniences at Ashton Court.

Burton-on-Trent, Staffs.—Sheffield Regional

Burton-on-Trent, Staffs.—Sheffield Regional Hospital Board recommended to appoint Naylor, Sale and Widdows, St. Marys Gate. Derby, as architects for the provision of visitors' toilets at Bretby Hall Orthopaedic Hospital Hospital.

Chelsea.—L.C.C. planning permission is being sought for the erection of shops at 122 King's Road and shops at the rear. Campbell Jones and Sons, Dowgate Hill. London, E.C.4, are the architects for the

Chester-le-Street, Dur.—The Buxted Chicken Co., Ltd., Buxted, Sussex, are planning the erection of a cold storage depot at Birtley. Plans by Lanchester and Lodge, Woburn Square, London, W.C.1, are being considered by the planning authorities.

Cumbernauld, Lanarks.— Scottish Home Department, have approved two 20,000 sq. ft. factories to be erected on the Blairlinn industrial estate for Development Corporation.

Durham.—Planning permission is being sought for the erection of shops and offices at North Road, for Mr. K. Gradon, Whitesmocks, North End, Dur.

Plans have been prepared by the C.W.S. Architects' Department, 90 Westmorland Road. Newcastle upon Tyne, for alterations and additions to branch premises at Hill Top,

Bearpark, for Bearpark Industrial Co-operative Society, Ltd.; J. Wilson Hays, Central Chambers, Wingate, prepared plans for extending Kelloe Workmen's Club, Kelloe.

The North-Eastern Electricity Board, Dunning Street, Sunderland, are to erect new area headquarters on the site of a greyhound track at Holiday Park, Durham. The project is still in very early stages. The architects are L. J. Couves and Partners, Grainger Chambers, Hood Street, Newcastle upon Tyne.

The Richmond Sausage Co., Ltd., Litherland, Liverpool, are to erect a laboratory and workshop at their factory at Gilesgate Moor, Durham City. It is expected that a contract will be arranged with a local firm in the mear future.

will be arranged with a local firm in the near future.

Eccles, Lancs.—B.C. have approved, subject to conditions, C.C.'s schemes for the erection of Peel Green County Secondary School and a brick garage at the hostel for aged persons at Half Edge Lane.

B.C. recommended to approve, subject to conditions, plans for the removal of 20 existing temporary garages and erection of 3 brick garages on land at rear of 10 Trafford Road for John Collier and Sons, Ltd., 1 Lynwood Avenue, Eccles.

Frinton and Walton, Essex.—A public inquiry is to be held on Oct. 25 into scheme proposed by Godfrey Evans former Kent and England cricketer for the erection of a holiday village at the Naze Links estate, Walton-on-Naze, comprising 350 houses, 400 beach huts, shops, a yacht harbour, 80-bedroom hotel and petrol station. Estimated cost £2m.

Glasgow.—Western Regional Hospital Board propose a new 135-bed neuro-surgical unit to be attached to the Southern General Hospital. Estimated cost £500,000.

Glenrothes, Fifes.—Anderson Boyes and Co., Ltd., Flemington Electrical Works, Motherwell, propose to extend their existing works at Queensway Industrial Estate, by 35,000 sq. ft.

Hammersmith.—L.C.C. planning permission is being sought for the provision of car

Glenrothes, Fifes,—Anderson Boyes and Co., Ltd., Flemington Electrical Works, Motherwell, propose to extend their existing works at Queensway Industrial Estate, by 35,000 sq. ft.

Hammersmith.—L.C.C. planning permission is being sought for the provision of car parking facilities and technical accommodation at the junction of Wood Lane and Shinfield Street for the B.B.C.

Hampshire.—E.C. are preparing plans for the provision of additional accommodation at Cove Secondary School during 1962-63

Hexham, Northumb.—A subsidiary of the British Match Corporation has inspected sites at Hexham and Prudhoe for a proposed chipboard factory. Sites in other parts of the country are also under consideration.

Inverness.—Dean of Guild Court have agreed in principle to a heated indoor on a 17-acre site at Drummond Road, for C.C. Estimated cost £181,900.

Jarrow, Dur.—Corporation Planning Committee have approved the erection of additional storage tanks at the oil installation of Shell-Mex and B.P., Ltd.

Leicester. — Sheffield Regional Hospital Board recommended to appoint Pick, Everard, Keay and Gimson, 6 Mijlstone Lane, Leicester, as architects for the conversion of single rooms into a 10-bed ward at Fielding Johnson Hospital and short term improvements to teaching unit at Royal Infirmary; S. Penn Smith, Son and Partners, Waterloo House, 2 Hastings Street, Leicester as architects for improvements to mortuary and installation of refrigeration at the Isolation and Chest Unit and provision of linen store at Markfield Hospital; Pick Everard Keay and Gimson as architects for the provision of mortuary refrigeration at The Towers, Humberstone.

Magherafelt, Londonderry, — R.D.C. have agreed in principle to the heated indoor swimming pool. Estimated cost between £50,000 and £80,000.

London, — The architects for the £5m. Winchester House proposed at Old Broad Street, London, E.C.2. by The St. Martin's-le-Grand, E.C.1.

Mansfield, Notts.—Sheffield Regional Hospital Board recommended to appoint Myles-White and Associates, White Hart Cha

architects are Wilburn and Son, 11 South Parade, Doncaster, Yorks. Estimated cost £38,000.

Parade, Doncaster, Yorks. Estimated cost £38,000.

Newcastle upon Tyne. — King's College Division of Durham University are to purchase the site of Haymarket House for future development as a physical education centre.

Newcastle upon Tyne.—L. J. Couves and Partners, Grainger Chambers, Hood Street. Newcastle grainger Chambers, Hood Street. Newcastle, are the architects for a new girls grammar school, for the Convent of the Sacred Heart; plans are being prepared by P. J. Stienlet and Son, 4 Queen Square, Newcastle upon Tyne, for the erection of consulting rooms and offices in Queen Victoria Road, Newcastle, for the Royal Victoria Infirmary; The Walkerville Residents' Association, 11 Broomfield Avenue, Walkerville, Newcastle upon Tyne, are to reconstruct their hall at Appletree Gardens.

Newry, Down.—U.D.C. propose to build an abattoir near the present one at Warrenpoint Road. Estimated cost £35,000.

North Riding.—E.C. propose the erection of a new C. of E. school at Evilipatheres.

abattoir near the present one at Warrenpoint Road. Estimated cost £35,000.

North Riding.—E.C. propose the erection of a new C. of E. school at Fylingthorpe.

C.C. are to defer for six months consideration of tenders received for £143,000 extension scheme at the County Hall, Northallerton, schemes proposed by the C.C. include a clinic at Eston estimated to cost £24,750, health centre at Huntington, £26,470, and additions to highways depot at Northallerton, £12,600.

Nottingham.—Sheffield Regional Hospital Board recommended to appoint Wm. Saunders and Partners, 24 Castle Gate, Newark, as architects for improvements to sanitary facilities in Ossington ward and to casualty department at Newark Hospital.

Poole, Dorset.—B.C. have approved for inclusion in the 1962-63 capital programme scheme for the construction of a sports pavilion at Turlin Moor. Estimated cost £19,000.

Rothbury, Northumb.—I. H. Napper and

Rothbury, Northumb.—J. H. Napper and Partners, 133 Osborne Road, Newcastle upon Tyne, are the architects for new school, for the Governors of St. Thomlinson's C. of E.

Tyne, are the architects for new school, tor the Governors of St. Thomlinson's C. of E. School.

Plans are being prepared by Arthur and Kitkup, 13 Swinburne Street, Gateshead, for the erection of a village hall at Elsdon, Rothbury.

St. Marylebone.—L.C.C. planning permission is being sought for the erection of a hotel and public-house at Berners, 3, Grays Inn Square, London, W.C.l, are the architects for the scheme.

St. Pancras.—L.C.C. planning permission is being sought for the extension of the Jewish Free Secondary School, Camden Road, Camden Crescent. Lewis Solomon Kaye and Partners, Holborn Circus, London, E.C.l, are the architects for the scheme.

Sedgefield, Dur.—R.D.C. are continuing their efforts to buy land for the erection of £150,000 swimming baths. It is not expected, however, that the work will be able to proceed for at least four years.

that the work will be able to proceed for at least four years.

Stanley, Dur.—J. M. Angus, 3 Gallowgate, Newcastle upon Tyne, is the architect for proposed additions to the South Moor R.A.O.B. Club.

posed additions to the South Moor R.A.O.B Club.

Stepney.—L.C.C. planning permission is being sought for the erection of a flatted factory with showrooms, car park and warehouse at 54-63 Whitechapel High Street, 2, 4 and 6 Whitechurch Passage and 1-6 Manningtree Street for Central and District Properties, Ltd., Berkeley Square, London, W.I. Sutton in - Ashfield, Notts. — Sheffield Regional Hospital Board recommended to appoint Myles-White and Associates, White Hart Chambers, 16 White Hart Lane, Mansfield, as architects for improvements to mortuary and installation of refrigeration at King's Mill Hospital.

Winsford, Ches.—Sir James Farmer Norton and Co., Ltd., Adelphi Ironworks, Manchester, 3, propose the erection of a light engineering factory at the industrial estate.

Woolwich.—A contract is expected to be placed in December for the erection of the Jubilee building at Eltham College, Grove Park Road, London, S.E.9, for the Board of Governors of Eltham College. The architects are Seely and Paget, 41 Cloth Fair. E.C.1; the quantity surveyors, Langdon and Every, 21 Russell Square, W.C.1; and the consultants are E. J. Cook and Co. (Engineers), Ltd.

The estimated cost is £38,000.

#### DEMOLITION

Great Yarmouth, Norfolk.—B.C. recommended to approve the demolition of conveniences in a Gorleston children's playground. Watford, Herts.—North West Metropolitan Regional Hospital Board are to invite tenders for the demolition of the chapel in the grounds of Shrodells Hospital.

#### ELECTRICAL

Chesterfield, Derbys.—Sheffield Regional Hospital Board recommended to appoint F. P. Lockett and Partners, 89 Lewisham High Street, London, S.E.13, as consulting engineers for mechanical and electrical services at neurosis unit at Walton Hospital.

Newport, Mon.—B.C. recommended to approve scheme for alterations to traffic scheme at the Old Green Crossing and Town Centre. Estimated cost £6,000.

Nottingham.—Sheffield Regional Hospital

Estimated cost £6,000.

Nottingham.—Sheffield Regional Hospital Board recommended to appoint Hedley B. Marshall, 8 King Johns Chambers, Bridlesmith Gate, Nottingham, as architect for the installation of three lifts at Mapperley Hospital.

Swinton and Pendlebury, Lancs.—B.C. commended to negotiate a tender with North Western Electricity Board for the re-wiring of electric installation at the public baths.

#### GAS AND WATER SUPPLY

Carrickfergus, Antrim.—B.C. have approved a water scheme which includes the construction of a reservoir as an alternative to the storage of water in Loughmorne. Estimated cost £100,000.

tion of a reservoir as an alternative to the storage of water in Loughmorne. Estimated cost £100,000.

Hastings, Sussex.—B.C. recommended to approve the construction of a 2in, asbestos cement main from Winchelsea Town to the railway station and 4in, and 2in, mains to serve Filsham Road estate. Estimated cost £2,000 and £2,750 respectively.

Kent.—The Medway Water Board to invite tenders for the sinking of 23 exploratory borings on the Bewl Bridge storage and impounding reservior site between Lamberhurst and Ticehurst, with a view to the construction of a giant reservoir to serve the Medway Towns. Estimated cost of the scheme £3m.

Kerry, Eire.—C.C. propose to raise loans for 10 water supply schemes estimated to cost £40,000, and five sewerage schemes, £7,200.

Loftus, Yorks.—Tees Valley and Cleveland Water Board have approved schemes for mains extensions to Liverton Mines and Liverton Village, for U.D.C. Estimated cost £9,000 and £14,000, respectively.

Nottingham.—Sheffield Regional Hospital Board recommended to appoint H. J. Turner, 18 Fletcher Gate, Nottingham, as quantity surveyor and Bartlett and Gray, Castle Gate Chambers, Castle Gate, Nottingham, as architects for the provision of water storage at the City Hospital.

Wakefield, Yorks.—B.C. propose the erection of a reservoir filter station on land off the main Brighouse-Rochdale Road at Fixby, near Elland. Estimated cost £280,000.

#### HEATING AND VENTILATING

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Leicester.—Sheffield Regional Hospital Board recommended to appoint G. M. Atkinson, Jade Glen Chambers, Groby, Markfield, as consulting engineer for the installation of stokers, coal handling plant and boiler controls at The Carlton Hayes Hospital, Narborough.

Lincoln.—Sheffield Regional Hospital Board recommended to appoint Leake and Wilson, 27 High Street, Hull, as consulting engineers, for provision of mechanical and electrical services for clinical rooms at The County Hospital, and for adaptation of block I for medical records, changing accommodation for non-resident staff and committee room and adaptations to physiotherapy department a St. George's Hospital.

#### HOUSING SCHEMES

Belfast.—The Northern Ireland Housing Trust, 12 Hope Street, Belfast, 12, have won an appeal to construct houses on a site of 75 acres fronting on Dunmurry Lane opposite the Golf Course.

Bewdley, Worcs.—B.C. recommended to suspend scheme for the erection of 101 dwellings at Springhill estate, due to the present financial situation.

financial situation.

Boldon, Dur.—U.D.C. are to apply for county planning permission for the erection of 65 aged persons' bungalows on site north of Charles Street and Arnold Street.

Bridport, Dorset.—B.C. recommended to apply for sanction to borrow £3,900 for the aquisition of additional land and buildings at Fulbrooks, North Allington, for housing purposes; approve the erection of 14 aged persons flats at the junction of North Allington and Fulbrooks Lane and 12 at Magdalen Lane.

Castle Ward, Northumb,—John T. Bell and Sons, Market Street Chambers, Newcastle

apon Tyne, have received planning permission for housing developments on the Whorlton Grange estate, Westerhope.

Chanctonbury, Sussex.—R.D.C. propose the purchase of land at Briton's Croft, Steyning, for housing purposes.

Crook, Dur.—D. Lax, West Road, Crook, proposes erecting bungalows at West Road.

Docking, Norfolk.—C.C. recommended to approve in principle, R.D.C.'s scheme for the erection of warden's house, and a group of 30 old people's bungalows consisting of 14 one-bedroom dwellings, 14 with bed recesses and two two-bedroom dwellings, at Heacham.

Downpatrick, Down.—R.D.C. propose 250 house at Killyleagh and Ballynahinch. Work is expected to start this year.

Dundee.—James Parr, 132a Nethergate, Dundee, is the architect for the redevelopment of the Derby Street area, Hilltown. The scheme includes two 22-storey blocks each providing 176 three-apartment houses. Estimated cost £1,250,000.

Ellesmere Port, Ches.—B.C. have purchased land at Stanney Lane for use in connection.

Ellesmere Port, Ches.—B.C. have purchased land at Stanney Lane for use in connection with the municipal house building programme and for providing accommodation for the Liverpool overspill scheme.

and for providing accommodation for the Liverpool overspill scheme.

Falkirk, Stirlings.—Dean of Guild Court have approve the development at Carron Road for B.C., including demolition of existing buildings and erection of three three-storey blocks. Estimated cost £25,000.

Glasgow.—Miller and Black, 5 Newton Place, Glasgow, C.3, are the architects, and Leonard and Grant, 12 Melville Street, Edinburgh, 3, the consulting civil engineers for a proposed housing scheme on eight acres of Bellahouston Park, for City Council. The plans, providing for 570 houses in five 20-storey blocks. have been approved in principle. Ilfracombe, Devon.—U.D.C. are to proceed with scheme to purchase land at Horne Road as site for the erection of old people's houses.

Linlithgow, W. Lothian.—B.C. approved layout plans for phase 1 of the redevelopment of West Port including five blocks containing 58 houses.

Londonderry.—R.D.C. are to suspend their

of West Port including five blocks containing 58 houses.

Londonderry.—R.D.C. are to suspend their house-building programme for at least two months. This includes 20 houses at Fincairn, Drumahoe. Estimated cost 236,000.

North Lonsdale, Lancs.—R.D.C. have approved scheme for the erection of four two-bedroom houses, a pair of houses and two garages at Mill Yard, Cark.

Poole, Dorset.—B.C. are to proceed with scheme for the erection of a four-storey block of 30 maisonnettes at Old Orchard and Langland Street; have approved in principle plans for an 11-storey block of flats on site in Langland Street.

City Council recommended

land Street; have approved in principle plans for an II-storey block of flats on site in Langland Street.

Portsmouth.—City Council recommended to appoint E. Wingfield-Gowles, 32 Old Queen Street, London, S.W.1, as heating consultants for the erection of a special purpose block and 10 single-bed flats, Riders Lane, Leigh Park.

Safford Lanes B.C. recommended to approach to the second control of the second control o

Park.
Salford, Lancs.—B.C. recommended to approve the erection of 130 luxury flats for businessmen on a site at Bury New Road.
Skelmersdale, Lancs.—U.D.C. are preparing the layout of a new housing estate at Church Farm, Kiln Lane.
Sunderland, Dur.—Appleton and Hall, 134 High Street, Stockton-on-Tees, are seeking permission to erect houses at Old Silksworth, near Sunderland.
Torquay. Devon.—B.C. have approved in

near Sunderland.

Torquay, Devon.—B.C. have approved in principle scheme for the demolition of Waldon Castle Hotel, Warren Road, and Delmonte with Delmonte Lodge, Rock Road, and erection of flats on the sites.

West Bridgford, Notts.—U.D.C. propose the erection of six houses and eight old people's flatlets.

erection of six houses and eight old people's flatlets.

West Ham, Essex.—B.C. propose the erection of a 15-storey block of flats in Plaistow High Street. Work is expected to start in the new year. Estimated cost £200,000.

Wigan, Lancs.—B.C. to apply for sanction to borrow £13,964 for the erection of eight old people's bungalows at Montrose Avenue. Pemberton.

Worthing. Sussex.—Tenders are to be

Pemberton.

Worthing, Sussex.—Tenders are to be invited at the end of October for the erection of a 12-storey block of flats surmounted by penthouses, together with seven-storey and four-storey blocks and an underground car park for 127 cars, at the Chios site, Heene Road, for Heavon Holdings, Ltd., Goldsmith and Pennells, 13 Liverpool Gardens, Worthing, are the architects and Wood and Weir, 5 Wigmore Street, London, W.1, are the quantity surveyors for the scheme. Estimated cost £300,000-£350,000.

#### PLAYING FIELDS, PARKS, ETC

Amble, Northumb.—U.D.C. have approved in principle, scheme for the development of Amble Links to comprise adventure playground and playing area with paddling pool. Estimated cost £12,000.

Portsmouth.—City Council recommended to approve the provision of a civil defence rescue training set at Fort Widley. Estimated cost £5,000.

#### ROADS, BRIDGES AND SITE WORKS

Barnes, Surrey.—B.C. have recinded scheme for the construction of an arterial road through the borough from east to west. Estimated cost 21m.

Blackburn, Lancs.—B.C. recommended to invite tenders from selected contractors for the erection of a footbridge at Pleasington playing fields

invite tenders from selected contractors for the erection of a footbridge at Pleasington playing fields. B.C. recommended to approve plans for the improvement of the junction of Penny Street

Salford

Salford.

Croydon, Surrey.—B.C. to invite tenders in two months for the construction of an underpass beneath George Street in the Autumn of 1962 for bridge works in connection with the scheme. Estimated total cost £450,000.

Dorchester.—B.C. recommended to approve plans for proposed new bridge over the river near Princess Bridge in Kings Road for C.C.

Eston, Yorks.—U.D.C. are to prepare revised plans for proposed roads and sewers on the Church Lane housing estate.

Farnborough, Hants.—M.T. have approved U.D.C.'s scheme for the widening of Farnborough Road from the Cleck House roundabout to Pinehurst Avenue.

Grangemouth, Stirlings.—Dean of Guild-Court have approved construction of roads and footpaths between Bowhouse Road and Kersiebank Avenue for B.C. Estimated conference of the construction of the conference of the confe

and footpaths between Bowhouse Road and Kersiebank Avenue for B.C. Estimated cost £22,000.

Limavady, Londonderry. — R.D.C. have approved a winter scheme of unemployment relief works. Estimated cost £25,000.

Middlesbrough, Yorks. — B.C. recommended to approve plans for the widening of Ferry Road, provision of omnibus turning circle and layout for new toll house, at Transporter Bridge (Middlesbrough approach) Ferry Road.

Norwich. — City Council have approved plans for the resurfacing of Newmarket Road and the construction of a footbridge over the Wensum in St. George Street. Estimated cost £10,883 and £4,000, respectively.

Portsmouth. — City Council recommended to proceed with the construction of a bridge over the railway at Burrfields Road.

Portsmouth. — City Council recommended to approve revised plans for the making-up of Military Road. Hilsea; apply for sanction to borrow £3,000 for road works at Highland Road and Milton Road.

Scarborough, Yorks. — B.C. recommended to approve scheme for the extension of the North Bay Promenade.

B.C. recommended to apply for sanction to borrow £13,652 for the proposed widening and improvement of Falconer's Road.

Scarborough, Yorks. — Borough Engineer has prepared a scheme for the widening, etc., of Falconer's Road.

SEWERAGE, SEWAGE AND REFUSE

# SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Ashby-de-la-Zouch, Leics.—U.D.C. have approved scheme for the improvement of a large part of the district sewerage system estimated cost £78,000; approve in principle improvement of Packington sewerage improvement works, £98,000.

works, £98,000.

Barnsley, Yorks.—B.C. have received Ministry approval in principle and are recommended to invite tenders for the reconstruction of High Level Sewage Works.

Erpingham, Norfolk.—R.D.C. recommended to invite tenders for the construction of the Weybourne sewerage scheme; submit to Ministry for approval, sewerage schemes for Corpusty, Southrepps and Leatheringsett; prepare outline plans for the provision of sewerage at Ingworth, Erpingham, Bodham and Suffield.

Lowestoft, Suffolk.—R.D.C. have approved

and Suffield.

Lowestoft, Suffolk.—R.D.C. have approved the construction of sewerage works at Brockhampton to serve Bishops Cleeve, Woodmancote, Southam and Stoke Orchard. Estimated cost £73,750.

Portsmouth.—City Council recommended to a part to experience to be because £2,000 for the

apply for sanction to borrow £3,000 for the construction of a foul water relief sewer at

Farlington.

Southwell, Notts.—R.D.C. are to submit to Ministry for approval sewerage and sewage disposal scheme for Ollerton, Boughton and

#### STREET LIGHTING

Norwich.—City Council recommended to approve scheme for the improvement of street lighting in Prince of Wales Road, Agricultural Hall Plain, Castle Meadow, Ipswich Road and Newmarket Road, Estimated cost £17.300.

Stretford, Lanes.—B.C. recommended to apply for sanction to borrow £3,200 for new lighting installations in Chorlton Road and Upper Chorlton Road.

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#### CONTRACTS

Full details of the Contracts marked will be found in our Advertisement Columns.

#### BUILDING AND DECORATING

(See also Housing Schemes)

Armagh. — New structure to accommodate incinerator, disinfector and emergency generator, and extension to record store at Lurgan and Portadown Hospital, for North Armagh Hospital Management Committee. Documents from Thomas T. Houston and Partners, 26 College Gardens, Belfast, 9. Deposit £3 3s. Tenders by Sept. 25.

Baildon, Yorks.—Additional buildings at the Briar Rydding Depot, Otley, for U.D.C., comprising the erection of: (1) Salt store and ash screening shed; (2) paper bailing store; (3) snow plough sheds; (4) raised loading platform. Documents from the Surveyor, Town Hall, Baildon. Tenders by October 7.

Beeston and Stapleford, Notts.—Erection of amenity block sewage farm, Beeston, for U.D.C. Works involve an entrance hall, toilets, dirty and clean changing rooms, showers and a meter control room. Construction—Ilin. cavity walls, solid floors, 22½ deg. pitch concrete tile roof—total overall size 38ft, 6in, x 25ft, 3in, rectangular plan. Documents from the Engineer and Surveyor, Town Hall, Beeston, Deposit £2 2s. Tenders by October 13.

Belfast.—New residential club for seamen, Garmoyle Street, Belfast for Society of \$5.

ments from the Engineer and Surveyor, Town Hall, Beeston. Deposit £2 2s. Tenders by October 13.

Belfast.—New residential club for seamen, Garmoyle Street, Belfast for Society of St. Vincent De Paul, including the following works: (1) Main building contract; (subcontracts) (a) electrical installation; (b) L.P.H.W. heating installation; (c) plumbing installation. Documents for the Main Building Contract from P. J. Davidson, Quantity Surveyor, 16 High Street, Belfast, 1. Deposit £10 10s. Documents for (a), (b) and (c) from C. P. McNally, Engineer, 143 Royal Avenue, Belfast, 1. Deposit £3 3s. each. Tenders by September 26.

Belfast.—Erection and completion of 59 dwellings and seven garages at New Barnsley estate extension, for City Council. Documents from City Architect's Department (Housing Section), 97 Townsend Street, Belfast, 13. Deposit £5, by cheque payable to Corporation. Tenders by October 3.

Belfast.—Supply and laying of Terrazzo paving at Petty Sessions Court, Chichester Street, Belfast, 1, for Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast, 1. Tenders by Sept. 26.

Belfast.—Repair and restoration of the stonework at Custom House for Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast, 1. Tenders by Oct. 12.

Belfast.—Alterations and extensions to Fane Street Primary School to form a Secondary

Finance. Documents from Room 105, Law Courts Building, Belfast, 1. Tenders by Oct. 12.

Belfast.—Alterations and extensions to Fane Street Primary School to form a Secondary School, for City Council. Documents from City Architect's Department, 40 Academy Street, Belfast, 1. Deposit £5, cheque payable to Corporation. Tenders by Oct. 19.

Belfast.—New intermediate school for boys, Brittons Parade. Supply, delivery and fixing of purpose-made metal windows and doors. Documents from P. and B. Gregory, chartered architects, 5 Crescent Gardens, University Road. Belfast, 7. Tenders by September 26.

Belfast.—Design, supply, fabrication and erection of structural steelwork, etc., for a factory extension at Broadway, for Ministry of Commerce. Documents from Room 28, Chichester House, 64 Chichester Street, Belfast, 1. Tenders by October 6.

Belfast.—Al Frection of playground shelter at Annadale Bovs' Grammar School, Annadale Embankment; (B) renewal of L.P.H.W. heating boiler and ancillaries at Strand Primary School, Strandburn Street. Documents from the City Architect's Department, 40 Academy Street, Belfast, 1. Tenders by October 19.

Belfast.—Alterations and additions to Assembly Hall at Kelvin Secondary School, Roden Street, for City Council, Documents from the City Architect's Department, 40 Academy Street, Belfast, 1. Deposit £2, cheques payable to Corporation. Tenders by October 19.

Bishop's Stortford, Herts.—Surfacing the 700fs of outbuildings of certain houses with

Bishop's Stortford, Herts.—Surfacing the 190fs of outbuildings of certain houses with asphalt, for U.D.C. Applications to the Engineer and Surveyor, Council House, Causeway, Bishop's Stortford, Tenders by Sontember 20

Breconshire.—Erection of additional accom-modation at the Builth Wells County Primary School, for C.C. Applications to the County Architect, Rhyd Offices, Brecon, by Septem-

Architect, Rhyd Onices, December 25,

Breconshire,—Erection of a dining hall and kitchen at the Home Office School, Ty-Mawr, Gilwern, near Abergavenny, for C.C. Applications to the County Architect, Rhyd Offices, Brecon, by September 30,

Breconshire.—Redecoration works required at the Cockcroft House Old People's Home, Hay-on-Wye, for C.C. Applications to the County Architect, Rhyd Offices, Brecon, by September 25.

September 25.

Bury, Lanes. — Internal decoration during Christmas vacation of part of ground floor of Technical College, Market Street, for B.C. Documents from the Borough Engineer, Town Hall, Bury. Tenders by Sept. 30.

Caernarvonshire. — Extensions to Yagol Dyffryn Ogwen at Bethesda, for Co. E.C. Applications to the Director of Education, Education Offices, Caernarvon, by September 23. Deposit £2 2s., cheque payable to County Treasurer.

Caledon, Tyrone.—Following work to Caledon Rectory for the Select Vestry: (a) Building repairs and minor alterations; (b) internal redecoration. Specifications and tender forms may be obtained from the Diocesan Architect for the Diocese of Armagh, Edwin S. Leighton, Shanks and Leighton, chartered architects, 26 Wellington Place, Belfast, 1. Tenders by Sept. 28.

Cheshire.—Approved lists of contractors and suppliers from whom tenders may be invited as required are being prepared under the following heads, for C.C.: (a) Building construction or adaptation up to £20,000; (b) building construction or adaptation over £20,000; (c) heating installations; (d) hot water installations, by firms employing registered plumbers; (e) gas installations; (f) electrical installations; (g) sanitary goods; (h) metal windows; (j) ironmongery; (k) precast concrete floors and roofs; (l) structural steelwork; (m) cloakroom equipment; (n) curtain walling and glazing; (o) roller shutters; (p) cycle racks; (q) balustrades and handrails; (r) acoustic tiling; (s) suspended ceilings; (t) cold room installations; (u) gymnasium equipment; (v) paint; (w) chain link fencing. Application forms from Edgar Taberner, county architect, County Hall, Chester, to be returned by September 29. Cheshire. -Approved lists of contractors and

September 29.

Clun, Salop.—External painting of four houses and eight flats at Chirbury and four houses and four flats at Wotherton, for R.D.C. Documents from H. Bramwell, surveyor, Council Offices, The Square, Bishop's Castle. Tenders by October 5.

Cornwall.—Alterations and improvements at St. Dennis Fire Station, for C.C. Applications to the County Architect, County Hall, Truro, by September 25. Deposit £1 ls. Tenders by October 16.

Deal Kest.—Completion of a greats applied.

Deal, Kent.—Completion of a sports pavilion, within a concrete framed structure and including external and internal walls, floors and finishes, for B.C. Documents from D. H. Seabrooke, chartered architect, 24 Tufton Street, Ashford, Kent. Tenders by October 2,

Denby Dale, Yorks.—Work of converting privies to water cloosets (with necessary drainage work) in Clayton West, Denby and Cumberworth and Skelmanthorpe Wards. Documents from the Public Health Inspector, Council Offices, Denby Dale. Tenders by Oct. 14.

Oct. 14.

Devonshire.—Erection of branch library in Vic Hallam prefabricated timber construction, on site at Harewood House, Plympton, for C.C. Applications to County Architect, 97 Heavitree Road, Exeter, by September 22. Deposit £2 2s., cheque payable to C.C.

Draperstown, Londonderry.—Supply, delivery and fixing of gymnasium equipment at Draperstown Voluntary Intermediate School, for the Very Rev. M. Collins, P.P., V.F. Documents from M. A. Fitzpatrick, architect and surveyor, Strand Chambers, 16/18 Strand Road, Londonderry. Deposit £2 2s. Tenders by Oct. 2.

Durham.—Following for C.C. Seaham Aged

Road, Londonderry. Deposit £2 2s. Tenders by Oct. 2.

Durham.—Following for C.C.: Seaham Aged Persons Hostel—erection; Blackhill R.C. (Aided) Infant School—renewal of timber floors; Bowburn County School — additional sanitary accommodation; Cleadon County School—renewal of timber floors; Consett Grove County School—renewal of lavatory basins; Deaf Hill County School—additional lavatory basins; Felling St. John Baptist R.C. (Aided) School—tar paving: Lanchester R.C. (Aided) School—tar paving: Lanchester R.C. (Aided) School—renewal of timber floors; Seaham Harbour County School—additional lavatory basins; Brandon—deditional lavatory basins; Brandon—Modern School—lectrical installation; Eppleton Colliery Modern School—renewal of timber floors; Ushaw Moor Modern School—extensions to playground; Waterhouses Modern School—alterations to housecraft room; Whitburn Modern School—tar paving; Wolsingham Secondary School—staff toilet; Spennymoor Recreation Ground Nursery School—electrical installation; Evenwood central kitchen—tarpaving, Durham County Police Authority; Standard police houses, Victoria Street,

Hartlepool—electrical installation. Applications to County Architect, South Street, Durham, by Sept. 27.

\*East Suffolk.—Ringshall Primary School, additions for C.C. Apply before Oct. 3. Tenders by Nov. 9.

Edinburgh.—Following for City Council: (a) Supply, delivery and installation of fireplaces; and (b) supply and delivery of ironmongery at Wardieburn Drive housing development. Applications, in writing, to the City Architect, City Chambers, Edinburgh, 1, by September 29.

\*Ellesmere Port, Ches.—Fireplaces, etc., in 31 houses for B.C. Tenders by Oct. 4.

Essex.—Hostel for the aged, Westwood Park, Little Horkesley, near Colchester. Adaptations to forma flat to provide a new dormer window, and to carry out other minorworks and decorations, estimated to cost about £700, for C.C. Written applications to H. Conolly, county architect, County Hall, Chelmsford, by Sept. 23.

Farnham, Surrey.—Erection of public conveniences, the approximate cubic contents being 2,000 cu. ft., for U.D.C. Documents from the Engineer and Surveyor, Council Offices, South Street, Farnham. Deposit £2 2s. Tenders by Oct. 9.

Gelligaer, Glam.—Installation of bathrooms at 34 New Road, Deri, 11 Station Row.

from the Engineer and Surveyor, Council Offices, South Street, Farnham. Deposit £2 2s. Tenders by Oct. 9.

Gelligaer, Glam.—Installation of bathrooms at 34 New Road, Deri, 11 Station Row, Tirphil, and 29 Heolddu Road, Bargoed, for U.D.C.

Documents from the Engineer and Surveyor, Council Offices, Hengoed. Deposit £2 2s. Tenders by Sept. 29.

Gelligaer, Glam.—Following works for U.D.C.: (1) General repairs and decorations at 1 and 2 Brecon Terrace, Deri; (2) restoration of fire-damaged B.I.S.F. house at 30 Hengoed Road, Hengoed; (3) erection and completion of eight flats in two blocks and one pair three-bedroom houses at Gelligaer Road, Hengoed. Documents from the Engineer and Surveyor, Council Offices, Hengoed. Deposit £2 2s. Tenders by Sept. 29.

Grimsby, Lincs.—Erection and completion of stray dog accommodation, together with paths, drainage and other ancillary works, at the Police Headquarters, Victoria Street, for B.C. Documents from the office of J. V. Oldfield, borough engineer and architect, Municipal Offices, Town Hall Square, Grimsby. Deposit £2. Tenders by Oct. 3.

Herefordshire.—Alterations and decorations to form residential accommodation at Ivy House, Hereford, for C.C. Applications to County Architect, Bath Street, Hereford, by September 27. Deposit £2 2s.

Hinckley, Leics.—Erection of 32 lock-up garages at Forest Road, for U.D.C. Documents from the Surveyor of the Council, Argent House, St. Mary's Road, Hinckley. Deposit £1. Tenders by October 2.

Keighley, Yorks.—Abattoir extension for B.C. Documents from Alan Sunderland, architect and surveyor, Barclays Bank Chambers, North Street, Keighley. Northants.—Repainting at Corn Market Hall for B.C. Documents from the Street for the decorations from the form of the Council, Argent House, St. Mary's Road, Hinckley. Leics.—Erection for St. Documents from Alan Sunderland, architect and surveyor, Barclays Bank Chambers, North Street, Keighley. Opposit £2. Tenders by October 2.

Oct. 21.

Kettering, Northants.—Repainting at Corn Market Hall for B.C. Documents from the office of the Borough Engineer and Surveyor, 3 Gold Street, Kettering. Deposit £2 2s. Tenders by Oct. 3.

Leicestershire.—Major alterations and additions to Ibstock Secondary Modern School, for C.C. Applications to County Architect, 123 London Road, Leicester, by Sept. 25. Tenders by Nov. 20.

Languagen. Denbighs.—Demolition, repair

Tenders by Nov. 20.

Llangollen, Denbighs. — Demolition, repair and painting of existing sheds and sheep and cattle pens, resurfacing of car park and extension, together with drainage and other incidental works for U.D.C. Documents from the Surveyor's Office, Town Hall, Llangollen. Deposit £2 2s. Tenders by Sept. 26.

Ludlow, Salop.—Repairs and improvements to the two council houses, Clee View and Stancroft, 1 and 2, Stan Road, Bitterley, for R.D.C. Documents from the Engineer and Surveyor. Stone House, Corve Street, Ludlow. Tenders by October 9.

\*Manchester.—Alterations to public con-

\*Manchester.—Alterations to public con-nience, for City Council. Tenders by enience,

venience, for City Council. Tenders by October 3.

\*Manchester.—Design and construction of reinforced concrete frame, for City Council. Tenders by October 16.

Market Harborough, Leics.—Works of conversion and improvements to 3, 5, 7 and 9 Main Street, Fleckney, Applications to Francis W. Keyworth, 20 Park Road, Melton Mowbray. Tenders by October 3.

Merthyr Tydfil, Glam.—Erection of an old persons' hostel for 40 persons at the Gurnos estate, of approximately 11,600 sq. ft. in area, for B.C. Documents from the Borough Architect, Town Hall, Merthyr Tydfil, Deposit £2 2s, Tenders by October 2.

\*Newcastle upon Tyne.—Supply of bus shelters for City Council. Tenders by Oct. 9.

Newmarket, Suffolk.—Alterations and improvements to 18 Nat Flatman Street, for

U.D.C. Works consist of the conversion of a bedroom into a bathroom and remodelling the existing kitchen, together with the provision of hot water services, necessary repairs and redecorations. Documents from P. R. Lees, architect, Council Offices, Severals House, Newmarket, Deposit £2 2s. Tenders by October 13.

Northamptonshire.—New secondary modern school for boys, Cliftonville Road, Northampton, for Co. E.C., including the erection of a complete new school with a total floor area of about 39,529 sq. ft. of steel-framed construction, partly three-storey and partly one-storied, together with site works, roads, fences, etc. Applications, giving details of total labour force and what part of it would be available for this contract, to H. A. Skerrett, chief education officer, Borough Education Office, Springfield, Cliftonville, Northampton, by Sept. 27.

Northern Ireland.—Plumbing and electrical sub-contracts for Housing Trust in 48 dwellings and three shops at Rathcoole 11a extension. Documents from the offices of the Trust, 12 Hope Street, Belfast, 12. Tenders by Sept. 27.

Northwich, Ches.—Erection of six single garages on the Rudheath, Leftwich and Manor

Property of the Street, Bellast, 12. Tenders by Sept. 27.

Northwich, Ches.—Erection of six single garages on the Rudheath, Leftwich and Manor Park estates, and for a block of 13 garages and two store buildings on the Leftwich estate, for U.D.C. Documents from the engineer and surveyor, The Council House, Church Road, Northwich. Tenders by October 2

engineer aims and some characteristics of the control of the contr

Nantymoel, for U.D.C. Documents from the Surveyor, Council Offices, Brynmenyn, near Bridgend. Deposit £2 2s. Tenders by Oct. 5.

Redcar, Yorks.—Construction of a conservatory at the rear of the Municipal Buildings, for B.C. Documents from the office of the Borough Engineer, Ridley House, Coatham Road, Redcar. Tenders by Sept. 29.

Rimington, Lancs.—Construction of a pump house at Tewitt Hill, Rimington, near Clitheroe, for Fylde Water Board, Documents from Engineer, Fylde Water Board, Documents from Engineer, Fylde Water Board, Sefton Street, Blackpool. Tenders by October 13.

Southampton.—Extension to south refreshment room involving installation of new lift and other works of alteration at the Civic Centre, for B.C. Written applications to Borough Architect, Civic Centre, Southampton, by Sept. 23. Tenders by Oct. 20.

Staffordshire.—Erection and completion of two F.E. infants' school consisting of assembly hall, six classrooms, etc. (9,773 super. ft.) at Planks Lane, Wombourn, for C.C. Applications to T. H. Evans, clerk to the County Council, County Buildings, Stafford, by Oct. 4. Deposit £2 2s. Tenders by Nov. 15.

Standish with Langtree, Lancs.—Construction of a public convenience adjacent to the Public Hall, High Street, for U.D.C. Documents from the office of H. Knowles, engineer and surveyor, Ashfield House, Standish. Deposit £2 2s., cheques payable to U.D.C. Tenders by October 16.

Truro, Corn.—Construction of five garages at Roseland Crescent. Tregony, for R.D.C. Documents from A. J. Cornelius, architect, 13 Lemon Street, Truro, Tenders by October 9.

13 Lemon Street, Truro. Tenders by October 9.

Uxbridge. Middx.—Construction of central depot, Harlington Road, Hillingdon, for B.C. The works comprise the construction of four main buildings of two types: (1) Office/workshops and stores, both of two storeys, in-situ concrete framed with flat roofs and brick walls and having a total floor area of some 14,200 sq. ft.; (2) garages and vehicle workshops. both single storey with barrel vault roofs and brick walls and having a total floor area of some 17,300 sq. ft. Written applications to Harold E. G. Stripp, borough engineer and surveyor, 263 High Street, Uxbridge, giving brief particulars of similar work carried out, and names of local authorities or architects from whom references can be obtained, by Sept. 28.

Watford, Herts.—Supply and erection of

Sept. 28.

Watford, Herts.—Supply and erection of approximately 1,700 super. yd. of concrete block dwarf front garden walls with coping, together with 350 tubular iron entrance gates with concrete posts, for 350 houses, Leavesden Green estate, for B.C. Applications to

F. C. Sage, borough engineer and surveyor, Town Hall, Watford, by September 25, Watford, Herts.—Provision of hot water systems and alterations to 25 council houses at Rendlesham Avenue, Radlett, for R.D.C. Documents from the Engineer and Surveyor's Department, 99 Langley Road, Watford. Tenders by October 10.

West Suffolk.—Erection of home for the aged at Place Farm, Haverhill, for C.C. Applications to the County Architect, 13 Westgate Street, Bury St. Edmunds, by September 29. Deposit £2 2s. Tenders by November 3.

West Riding.—Scullery improvements at Rothwell County Infants School, for C.C. Documents from the office of the Divisional Arheitect, Bishopgarth, Westfield Road, Wakefield. Tenders by October 17.

West Riding.—Following for C.C.: (1) Completion of erection of a detached bungalow at Bentley Kirkby Avenue Infants' Hostel (building contractors only); (2) construction of a staff room, store room and staff toilet at Worsbrough Birdwell J.M.I. School (general contractors only); (3) scullery improvements at Rothwell County Infants' School, Applications for contracts 1 and 2 from the office of the County Architect, Bishopgarth, Westfield Road, Wakefield, and for contract 3, the office of the Divisional Architect, Bishopgarth, Westfield Road, Wakefield. Tenders by October 17.

West Riding.—Internal and external painting to South Elmsall Fire Station for C.C.

office of the Divisional Architect, Bishopgarth, Westfield Road, Wakefield. Tenders by October 17.

West Riding.—Internal and external painting to South Elmsall Fire Station for C.C. Applications to the Divisional Architect, Bishopgarth, Westfield Road, Wakefield. Tenders by Oct. 16.

West Sussex.—Following for C.C.: (1) Stage 2 completion of junior school at Spierbridge Road. Storrington, near Pulborough (Job 6834); (2) major extensions at Chesworth Primary School. Horsham (Job 6777). Applications to the County Architect, County Hall, Chichester, by Sept. 26. Quantities will be issued on or about Nov. 23 for (1) and Jan. 11 for (2).

"Whiston, Lancs.—Improvements to properties at Knowsley Village, for R.D.C. Deposit £1 ls. Tenders by October 11.

Willerby, Yorks.—Alterations ao Ulrome Ward to provide ward kitchen facilities and conversion of seven side rooms at De La Pole Hospital for Leeds Regional Hospital Board. Applications to the Architect to the Board, Park Panade, Harrogate, by noon, Sept. 25. Deposit £2 2s. (cheques payable to the Board). Plans also seen at the office of Wheatley and Houldsworth, chartered architects, Savile House, Savile Street, Hull. Tenders by Oct. 12.

Willerby, Yorks.— Alterations to the staff kitchen and dining room at De La Pole Hospitchen and dining room at De La Pole

Savile House, Savile Street, Hull. Tenders by Oct. 12.

Willerby, Yorks. — Alterations to the staff kitchen and dining room at De La Pole Hospital, Willerby, E. Yorks., for Leeds Regional Hospital Board. Applications to the Architect to the Board, Park Parade., Harrogate, by noon, Oct. 2. Deposit £2 2s. (cheques payable to the Board, Plans also seen at the office of Wheatley and Houldsworth, chartered architects, Savile House, Savile Street, Hull. Tenders by Oct. 26.

Winestead, Yorks.—Alterations to the laundry building to provide staff rooms and offices at Winestead Hall Hospital, Winestead, E. Yorks., for Leeds Regional Hospital Board. Applications to the Architect to the Board, Park Parade, Harrogate, by noon, Sept. 26. Deposit £2 2s. (cheques payable to the Board). Plans also seen at the office of Wheatley and Houldsworth, chartered architects, Savile House, Savile Street, Hull. Tenders by Oct. 17.

#### CLOTHING AND TEXTILES

\*Nottinghamshire. — Police uniform and waterproof clothing for Standing Joint Committee. Tenders by Oct. 27.

Perth and Kinross.—Supply of water-proof clothing for roadmen for C.C. Documents from the County Surveyor, 57 Feus Road, Perth. Tenders by Oct. 9.

#### DEMOLITION

Carshalton, Surrey.—Demolition of public trench shelter—Banstead Downs, for U.D.C. Documents from the office of the Engineer and Surveyor, Stone Court. The Grove. Carshalton. Tenders by September 25.

\*Harrow, Middx.—Demolition of 194 Station Road for B.C. Deposit £2. Tenders by Oct. 3.

Oct. 3.

Lancashire. — Demolition of weights and measures office and erection of two brick-built garages at the Chadderton police station, for C.C. Applications for County Architect. P.O. Box 26. County Hall, Preston, by Sept. 25.

Mansfield, Notts. — Demolition of the

Sept. 25.

Mansfield, Notts.—Demolition of the following for B.C.: (a) 70 and 72 Rosemary Street; (b) 14, 15, 16 and 17 Plantation Row, Walkden Street; (c) warehouse rear of 64 Stockwell Gate (lately in occupation of Mr. Webster); (d) workshop, etc.,

Stockwell Gate, rear of King's Head Public House, lately in occupation of British Woodwares, Ltd. Documents from the Borough Engineer and Surveyor, Carr Bank, Mansfield Deposit £2 2s., payable to B.C. Tenders by September 25.

September 25.

Morecambe and Heysham, Lancs.—Demolition of certain properties in Lord Street and Poulton Square, for B.C. Documents from Borough Engineer, Town Hall, Morecambe and Heysham. Tenders by October 2.

Oxfordshire.—Demolition and disposal of all buildings, shelters, concrete roads, hard standings and bases comprising part of the disused airfield in the parish of Shilton, for C.C. Documents from the County Surveyor, 8 New Road, Oxford. Tenders by September 29.

Rhymney. Mon.—Demolitics. of 22.

8 New Road, Oxford. Tenders by September 29.
Rhymney, Mon.—Demolition of 22 stonebuilt dwellings at Red House Row and Carno
Pit Row, for U.D.C. Documents from W. T.
Bebb, architect, Manor House, Bank Square,
Chepstow. Tenders by Sept. 26.
Taunton, Som.—Demolition of four houses
at Kingston Road and six houses at Florence
Road, for B.C. Documents from Borough
Engineer, St. Paul's House, Taunton.
\*Torquay, Devon.—Dismantling of steelframed timber stores and demolition of ancillary buildings at Temperance Street, for B.C.
Tenders by Oct. 13.

#### ELECTRICAL

Birmingham.—Replacement of the lift at aged persons' home, Highbury Hall, Queensbridge Road, Moseley, Birmingham, 13, for City Council. Documents from the office of Sir Herbert J. Manzoni, city engineer and surveyor, Baskerville House, Civic Centre, Birmingham, 1. Deposit £2 2s. Tenders by Sept 26. mingham, 1. Sept. 26

City Council. Documents from the office of Sir Herbert J. Manzoni, city engineer and surveyor, Baskerville House, Civic Centre, Birmingham, 1. Deposit £2 2s. Tenders by Sept. 26.

Blackpool, Lancs.—Supply and installation of lighting and power supplies to the pump house at Wyre Lane, Garstang—contract 149, for Fylde Water Board. Documents from the Engineer, Fylde Water Board. Setfon Street, Blackpool. Tenders by October 13.

Ludlow, Salop.—Electrical rewiring of nine of the 10 houses at Ludlow Road, Cloebury Moriter, for R.D.C. Documents from the Engineer and Surveyor, Stone House, Corve Street, Ludlow. Tenders by October 9.

Manchester.—Electrical installation to be installed in the fourth floor, central library, for City Council. Documents from the City Architect, P.O. Box 488, Town Hall, Oct. 9.

Manchester.—Renewal and reinforcement of electrical installation in the Police Headquarters for City Council. Documents from the City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Oct. 2.

Northern Ireland.—Coolkeeragh power station, specification NI.1640, station cabling, for Electricity Board, including the supply, delivery and erection of power control and indication cables for four boiler, turbogenerator and associated equipment. Documents from Kennedy and Donkin, consulting engineers, 64 Royal Exchange, Manchester, 2. Deposit £5 5s., cheques payable to the Board. Tenders by Nov. 20.

Slough, Bucks.—Supply and fixing of the electrical installation to the proposed crematorium at Stoke Place, for B.C. The work will include the provision of underfloor heating. Applications to the Borough Engineer, Town Hall, Slough, by September 19. It is anticipated that building operations will commence at the end of 1961 and will be completed in the latter part of 1963. Tenders by Oct. 6.

Stoke-on-Trent, Staffs.—Following for City Council: (a) Electrical installations, Burnwood C.S. School—Laboratory furniture and fittings. Written applications to the City Architect. Kingsway, Stoke-on-Trent, by Sept. 12. Deposit £

#### FENCING

FENCING

East Suffolk. — Beccles Blythburgh Road, A.145, fencing (contract 47), for C.C. Supply and erection of approximately 1,068 lin. yd. of wooden post and rail fencing at Brampton. Documents from the County Surveyor, County Hall. Ipswich. Tenders by Oct. 2.

\*Woking, Surrey.—Boundary fencing, for U.D.C. Deposit £2 2s. Tenders by September 29.

#### GAS AND WATER SUPPLY

Amesbury, Wilts.—Regional water supply—contract 13, Totterdown link main, for R.D.C., including the laying of approximately 14 miles of 9in. diameter spun-iron water mains and incidental works. Documents from Lemon and Blizard, consulting engineers, Telford House, Hulse Road, Southampton. Deposit 63 3s., payable to R.D.C. Plans also seen at Council Offices, Redworth House, Amesbury. Tenders by September 27.

Blackmool Lancs—Supply, and installation.

Tenders by September 27.

Blackpool, Lancs.—Supply and installation of lime dosing pump, pH control equipment, pipework and electrical wiring at Stocks Filter House, Slaidburn, Yorkshire (W.R.), contract 150, for Fylde Water Board, Documents from the Engineer, Fylde Water Board, Sefton Street, Blackpool, Tenders by October 13.

Blackpool, Lancs.—Supply and delivery to Westby Reservoir site near Kirkham, Lancs. of curved aluminium troughed roof sheets contract 142, for Fylde Water Board. Documents from the Engineer, Fylde Water Board, Sefton Street, Blackpool. Tenders by November 10.

Sefton Street, Blackpool. Tenders by November 10.

Coleraine, Londonderry. — Supplying and laying approximately 4,350 lin. yd. of 4in. class B A.C. water main from Ballylease to Ballysally, for R.D.C. Documents from Clerk of Council, Council Offices, I Ferryquay Street, Coleraine. Tenders by October 7.

\*\*Darlington, Dur.\*\*—Laying 24 miles of steel mains for Tees Valley and Cleveland Water Board. Apply by Sept. 27. Tenders by Nov. 1.

\*Depwade, Norfolk.—Construction of bore-ele for R.D.C. Deposit £3. Tenders by Deposit £3.

oct. 9.

Enniskillen, Fermanagh. — Following contracts for R.D.C.: Marble Arch-Brockagh Bridge water scheme, comprising the supplying, laying and jointing in a common trench of approximately 6,167yd. of 10in. class D and 6,167yd. of 10in. class B asbestos-cement water mains and specials in the above districts. Letterbreen Cross - Crawford's Hill water scheme, comprising the supplying, laying and jointing of approximately 7,695 lin. yd. of 8in. class D and 1,285 lin. yd. of 8in. class D and 1,285 lin. yd. of 8in. class C asbestos-cement water mains and specials in the above district. Documents from the Council Offices, Cornagrade, Enniskillen, or the office of W. D. R. and R. T. Taggart, consulting engineers, 13 College Gardens, Belfast. Deposit £5 5s. each. Tenders by Oct. 13. Belfast. Oct. 13.

Oct. 13.

Gower, Glam.—Construction of a covered reinforced concrete reservoir of 500,000 gallons capacity at Cefn Bryn, near Penmaen, Gower (adjacent to existing reservoir) together with fittings and ancillary works, for R.D.C. Documents from Engineer and Surveyor, Council Offices, 19/21 Uplands Crescent, Swansea. Deposit £5 5s. Tenders by October 19.

\*Inverness-shire.—Construction of mass con-

Deposit £5 5s. Tenders by October 19.

\*Inverness-shire.—Construction of mass concrete dam for C.C. Tenders by Oct. 17.

Lisburn, Antrim.—Water supply scheme, Aghalea and Aghagallon, for R.D.C., including the laying of approximately 9,000yd, of 4in. diameter spun-iron water pipes and other ancillary works. Documents from John M. Shirley, clerk of Council, Council Offices, Harmony Hill, Lisburn. Deposit £1 1s. Tenders will not be accepted from contractors who have not carried out successfully at least two civil engineering contracts for public authorities exceeding £20,000 each. Tenders by Oct. 17.

Lothingland, Suffolk.—Laving of approxi-

Dy Oct. 17.

Lothingland, Suffolk. — Laying of approximately 550yd. of 3in. diameter asbestos-cement water mains in the parish of Barnby, for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Rectory Road, Lowestoft. Deposit £1 1s. cheque. Tenders by Sept. 22.

'Minehead, Som.—Laying of water main to Butlin's Holiday Camp for U.D.C. Tenders by Oct. 4.

by Oct. 4.

Newcastle Emlyn, Carms. — Water supply extension. Alltwalis to Windy Corner, etc., for R.D.C. The works comprise of excavating and refilling trenches in roads and fields, supplying, laying and jointing approximately 2,250yd. of 21n. diameter and 1,500yd. of 11n. diameter absetos-cement pressure pipes, elevated storage tank, pumping station and pumping plant, together with appurtenant works. S. J. Davies, clerk to the Council, Council Offices. Pontwelly, Llandyssul, or from J. Owen Parry, Lewis and Partners, consulting engineers, Arcade Chambers, Ammanford. Deposit £3 3s. Tenders by Sept. 30.

Newtownards, Down.—Supply, delivery and

Tenders by Sept. 30.

Newtownards, Down.—Supply, delivery and erection of two submersible electric water pumps, together with associated pipework valves, fittings, instruments and control gear, for B.C. Pump 1 is to deliver 142 gallons per minute to 130ft, head. Pump 2 is to deliver 142 gallons per minute to 260ft, head. The pumps are to be fixed in 10in. diameter water supply borehol's. Documents from the Borough Surveyor, Town Hall, Conway Square, Newtownards. Tenders by Oct. 11.

Newtownards, Down.—Supply and delivery of eight waste detecting water meters for B.C. Documents from the Borough Surveyor, Town Hall, Conway Square, Newtownards. Tenders

Nottingham.—Sinking and test pumping three 30in. boreholes in a field adjoining the Wellow-Eakring road in the parishes of Ompton and Wellow, Southwell, for City Council. Documents from B. W. Davies, engineer and general manager, Water Department, Castle Boulevard, Nottingham. Deposit £1 Is. Tenders by Oct. 16.

Omagh, Tyrone.—Supplying and laying of approximately 1,950 lin. yd. of 2in. diameter class C Everite water main from Gillygooley to Corlea, for R.D.C. Documents from Clerk of Council, R.D.C. Offices, Lisnamallard, Omagh. Deposit £2 2s. Tenders by September 26.

\*Poole, Dorset.—Laying trunk main from

to Corlea, for R.D.C. Documents from Clerk of Council, R.D.C. Offices, Lisnamallard, Omagh. Deposit £2 2s. Tenders by September 26.

\*Poole, Dorset.—Laying trunk main from Lytchett Matravers to One Elm, for Poole and East Dorset Water Board. Tenders by Oct. 23.

Skipton, Yorks.—Excavation for water main. Carleton, near Skipton, for Craven Water Board, including excavating and refilling approximately 800yd, trench in The Highway to lay 4in. diameter pipe. Documents from Craven Water Board, Belmont Bridge, Skipton, Yorkshire, by application on contractor's headed paper. Tenders by October 2.

Templemore, Tipperary, Eire.—Construction of house connections to existing sewers, and the reconstruction of existing water distribution system, for U.D.C. The work comprises the construction of approximately 80 house connections to sewers entailing the laying of the following provisional lengths of stoneware pipe sewers: 1,375 lin, yd. 4in.; 764 lin, yd. 6in.; 30 lin, yd. 9in. and ancillary fittings. Together with the improvement of the water distribution system entailing the laying of the following provisional lengths of ci. class B. pipe watermain: 20 lin, yd. 7in.; 60 lin, yd. 8in.; 900 lin, yd. 1in. 4in.; 660 lin, yd. 3in.; 900 lin, yd. 1in. 4in.; 660 lin, yd. 3in.; 900 lin, yd. 1in. 4in. service pipes and ancillary fittings. Documents from Michael Cantrell, of Micholas O'Dwyer, Son and Partners, consulting engineers, 6 Burlington Road, Dublin. Deposit £10 l0s. Tenders by October 2.

Wainford, Suffolk.—Construction of approximately 2,300yd. of 4in. asbestos cement water main between Brampton and Westhall, near Halesworth, for R.D.C. Documents from A. P. I. Cotterell and Son, engineers, 54 Victoria Street, Westminster, S.W.I. Deposit £3 3s, Plans also seen at the Council Offices. 1 Saltgate, Beccles, Suffolk. Tenders by October 2.

Williton, Som.—Supply and laying of water mains for Clatworthy water supply scheme (contract 13) for R.D.C.

October 2.

\*Williton, Som.—Supply and laying of water mains for Clatworthy water supply scheme (contract 13) for R.D.C. Deposit £3 3s. Tenders by Oct. 30.

# HARBOURS, PIERS AND SEA DEFENCE WORKS

East Suffolk and Norfolk.— Aldeburgh sea defences for River Board, comprising construction of three steel pile groynes, stage IV. each approximately 76ft. long, situated on the beach opposite Aldeburgh Yacht Club. The contract involves the supply and driving of approximately 2.836 sq. ft. of steel sheet piling and 720 lin. ft. of steel box piles, and the supply and fixing of approximately 228 lin. ft, of bullhead rail walling and 128 cu. ft. of greeneart timber. Documents from K. E. Cotton, chief engineer to the Board, The Cedars, Albemarle Road, Norwich Norfolk, Nor. 81E. Deposoit £5s 5s. Tenders by Oct. 9. Ceda... Nor. 81E. Oct. 9. \*Southampton. hampton. — Dredging for Harbour Deposit £10 10s. Tenders by Oct. 9.

#### HEATING AND VENTILATING

\*Bridlington, Yorks.—Heating and electrical installations at Bempton Lane Hospital for Leeds Regional Hospital Board. Apply by Sept. 26. Deposit £2 2s. each. Tenders by Oct. 18.

Leeds Regional Hospital Board. Apply by Sept. 26. Deposit £2 2s. each. Tenders by Oct. 18.

Cork, Eire.—Supply and erection of a cold store installation and equipment in the terminal building at Cork Airport, for Department of Transport and Power. Documents from the Department of Transport and Power, Kildare Street, Dublin, Deposit £2. Tenders by September 26.

Sunderland, Dur. — Sunderland Technical College.—South Johnson Street site.—supply. deliver and fixing of mechanical engineering services (steam boiler plant, steam services, low pressure hot water central heating, domestic hot and cold water services, gas services, mechanical ventilation, vacuum and compressed air services, etc.), estimated to cost £90,000. The technical college comprises a six-storied main block, three-storied east block, two-storied lecture theatre block single-storied heavy laboratory block and radioactive techniques block. Documents from Borough Architect, Grange House, Stockton Road, Sunderland. Deposit £2 2s., cheques payable to Corporation. Tenders by October 12.

Wallasey, Ches. — Secondary Technical Grammar School, Mosslands Drive—heating, ventilating, hot and cold water services in connection with conversion of plumbing shop into advanced chemistry laboratory. Documents from the Borough Architect, Town Hall, Wallasey. Tenders by Oct. 9.

#### HOUSING SCHEMES

HOUSING SCHEMES

Aldridge, Staffs.—Twelve flats, six bed/sit bungalows and conversion of "Queslade" into eight bed-sitter units and communal facilities, at Great Barr, for U.D.C. Documents from James Mason, engineer and surveyor, 9 Leighswood Road, Aldridge, Deposit £2 2s. Tenders by September 26.

Aldridge, Staffs.—Two hundred and twenty-eight dwellings and 50 garages at Ryders Hayes Lane, Pelsall, for U.D.C. Documents from James Mason, engineer and surveyor, The Poplars, 9 Leighswood Road, Aldridge. Deposit £2 2s. Tenders by September 26.

\*Basingstoke, Hants.—One hundred and ninety-six dwellings at South Ham estate for B.C. Deposit £2 2s. Tenders by Oct. 24.

Bathavon, Som.—Thirteen traditional type bungalows together with warden's block at Wellow, for R.D.C. Documents from Paul Kennerell Pope, architect, 18 Brock Street, Bath. Deposit £3 3s. Tenders by Oct. 17.

Bullingdon, Oxon.—Two bungalows and garages at Berinsfield for R.D.C. Applications to J. E. Busfield, surveyor, 76 Banbury Road, Oxford, by Sept. 27.

Bury St. Edmunds, Suffolk.—Pair of dwellings at Fornham Park for B.C. Documents from the Borough Engineer, Borough Offices, Bury St. Edmunds. Deposit £2 2s. Tenders by Oct. 6.

Cardiff.—Fifty-five dwellings at Llanrumney

Bury St. Edmunds, Suffolk.—Pair of dwellings at Fornham Park for B.C. Documents from the Borough Engineer, Borough Offices, Bury St. Edmunds. Deposit £2 2s. Tenders by Oct. 6.

Cardiff.—Fifty-five dwellings at Llanrumney in two contracts as follows, for City Council: (i) 20 one-bedroom two-storey flats at Braunton Avenue; (ii) 35 dwellings comprising 28 one-bedroom two-torey flats, and seven three-bedroom houses at Parracombe Crescent. Documents from the City Architect's Department, Municipal Offices, Greyfriars Road, Cardiff. Deposit £2 2s., cheques payable to Corporation. Tenders by October 12.

"Chelmsford, Essex.—Hordy houses, five old aged persons' bungalows, together with garages, sewage treatment plant, roadworks and incidental site works at Maldon Road, in the parish of Margaretting, for R.D.C. Documents from the office of the Housing and Estates Manager (Room 27), Council Offices. New London Road, Chelmsford. Deposit £2. Tenders by Oct. 9.

"Corby, Northants.—Old persons' flats at Studfall Avenue for U.D.C. Deposit £3 3s.
Tenders by Oct. 6.

Daventry, Northants.—Two bungalows at Bucknills Lane, Crick, for R.D.C. Documents from H. Bonsor, surveyor, Council Offices, Daventry, Northants.—Two bungalows at Bucknills Lane, Crick, for R.D.C. Documents from H. Bonsor, surveyor, Council Offices, Daventry, Deposit £3 3s. Tenders by Oct. 2.

Eastbourne.—Twenty-four flats in a single three-storey block, together with a two-storey detached house, in Bourne Street, for B.C. Applications to the Borough Surveyor, 2/4 Saffrons Road, Eastbourne, by October 23.
Deposit £2 2s, cheque payable to Corporation, Tenders by December 15.

East Suffolk.—One pair of police houses with outbuildings at Harris Avenue, Lowestoft, for Standing Joint Committee. Applications to E. J. Cundliffe. county architect, County Hall, Inswich, before Sept. 25. Tenders by Oct. 20.

Gillingham, Kent.—One block of six maisonnettes, 14 flats and clinic at Goud-

Oct. 20.

Gillingham, Kent.—One block of six maisonnettes, 14 flats and clinic at Goudhurst Road, stage II. for B.C. Documents from the Borough Engineer's Department, Municipal Buildings, Gillingham. Deposit £5 5s. (cheques payable to Corporation). Tenders by Oct. 16.

Golborne, Lancs.—Thirty houses, Oaklands Road, Lowton, for U.D.C. Documents from J. B. Hovle, engineer and surveyor, Council Offices. Lowton, near Warrington. Deposit £5 5s. Tenders by Oct. 11.

Havant and Waterloo, Hants.—A block of eight flats and 12 houses, together with drainage and external works, at Cunningham Road, Waterlooville, for U.D.C. Documents from the offices of the Engineer and Surveyor, 1 Park Road North, Havant. Tenders by Oct. 3.

Horncastle, Lincs.—Fourteen flats (10 one-bedroom flats in one block, and four two-bedroom flats) and site works, etc., at Paddock site, east of New Inn for U.D.C. Applications to Wm. Saunders, and Partners, architects, 24 Castle Gate. Newark-on-Trent, Notts., or 57 Upaate, Louth. Deposit £3 3s. Tenders by Oct. 11.

Isle of Wight.—(a) Four pairs of bungalows at Brading; (b) an access road at Brading, for R.D.C. Documents from 30 Pyle Street, Newport. Deposit £2 2s. Tenders by October 2.

Leyburn, Yorks.—Twenty-two unity traditional dwellings, 16 at Middleham and six at topic of the proper service of the proper services.

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Leyburn, Yorks.—Twenty-two unity traditional dwellings, 16 at Middleham and six at Newton-le-Willows, for R.D.C. Documents

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from the Surveyor, Thornborough Hall, Leyburn. Deposit £2 2s. Tenders by October 14.

Luton, Beds.—Erection of 147 flats in 12 three-storey blocks, together with 59 garages and other ancillary works on the Farley Hill housing estate, for B.C. Documents from Borough Architect, Town Hall, Luton. Tenders by December 1.

Lutterworth, Leics.—Six bungalows at The Close, Swinford, for R.D.C. Documents from A. F. Ashton, clerk of the council, Council Offices, Lutterworth, Rugby. Tenders by October 16.

Midlothian.—West Calder central area

Offices, Lutterworth, Rugoy.
October 16.

Midlothian.—West Calder central area redevelopment, for C.C., including several works (in one contract) for 12 houses, nine maisonnettes, nine shop units and 24 lock-up garages, comprising phase I of the Central Area Redevelopment at West Calder. Applications to the County Architect, 32 Palmerston Place, Edinburgh, 12, by September 25.

Morley, Yorks.—Following, for B.C.: Contract 1, 20 bungalows in pairs (14 north aspect and six south aspect types); 2, 10 houses in pairs (type A.3), Documents from the Borough Engineer's Office, Town Hall, Morley. Deposit £2 2s. Tenders by October 16.

Resks.—One block of four and

houses in pairs (type A.3). Documents from the Borough Engineer's Office, Town Hall, Morley. Deposit £2 2s. Tenders by October 16.

Newbury, Berks.—One block of four and two pairs of aged persons' dwellings (scheme 14), Gloucester Road, for B.C. Drawings from the Borough Surveyor, Municipal Buildings, Newbury. Tenders by Oct. 6.

Newmarket, Suffolk.—Fifteen houses in Edinburgh Road, for U.D.C. The work includes the whole of the site preparations, pavings, drainage and services. Documents from P. D. Lees, architect, Council Offices, Severals House, Newmarket. Deposit £2 2s. Tenders by October 13.

Penybont, Glam.—Following works for R.D.C.: (1) 60 traditional type dwellings at Bryntirion redevelopment scheme 7: (2) completion of siteworks 4, at Bryntirion housing site (approximately 2,132 super, yd. of tarmacadam, together with ancillary works). Documents from the Engineer and Surveyor, Penybont Offices, Coity Road, Bridgend. Deposit £5 5s. for (1) and £3 3s. for (2).

Tenders by September 21.

"Rotherham, Yorks.—Eighty-nine flats and 104 garages for B.C. Apply by Sept. 29.

Rothwell, Yorks.—Thirty three-bedroom houses, eight one-bedroom bungalows and four two-bedroom bungalows at Town Street (East) Carlton, for U.D.C. Documents from R. A. Easdale and Son, architects, County Chambers. 12 Wesley Street, Castleford. Deposit £3 3s. Tenders by September 27.

Staines, Middx.—Two pairs of houses, one three-storey blocks of 15 flats and maisonnettes and 13 garages, section U, Town Lane, Stamel, Middx.—Four pairs of houses, two three-storey blocks of 15 flats and maisonnettes and 13 garages, section U, Town Lane, Stamel, Middx.—Four pairs of houses, two three-storey blocks of 15 flats and maisonnettes and Town Stames and

Staines, Middx.—Four pairs of houses, two three-storey blocks of 15 flats and maisonnettes and 72 garages, section Q, Town Lane. Stanwell, for U.D.C. Applications to Council Offices, Staines. Deposit £2 2s. Tenders by Oct. 20.

Oct. 20.

Swindon, Wilts. — Approximately 90 traditional dwellings in the Park South neighbourhood for B.C. Applications to the Borough Architect, Civic Offices, Swindon, by Sept. 29.

Thorne, Yorks.—Construction of a bungalow and subsequent demolition of a house for Ouse River Board. Documents from the at Chambers Mill, Thorne, near Doncaster. Engineer, Yorkshire Ouse River Board, 21 Park Square South, Leeds, 1. Tenders by Oct. 10.

Yorkshire.—Construction of a bungalow and subsequent demolition of a house at Chambers Mill, Thorne, near Doncaster, for Ouse River Board. Documents from the Engineer, Yorkshire Ouse River Board, 21 Park Square South, Leeds, 1. Tenders by October 10.

#### MATERIALS AND SUPPLIES

\*Blackpool, Lancs.—Supply of flags, kerbs, etc., for B.C. Tenders by October 16.
Coventry.—Supply of the following materials during year ending Nov. 30, 1962. for City Council: Brushes; mops; rags; rope; rubber boots. Documents, schedule 7, from City Engineer, Council House, Coventry. Tenders by Oct. 5.
Drogheda, Louth, Eire.—Supply and delivery to the Corporation Yard. Fair Street. Drogheda, for B.C., of 2,600 sq. yd. of road reinforcement, 6in. square mesh, weighing 4½lb. per sq. yd., in sheets measuring 15ft. by 7ft. 6in. Suppliers should indicate the country of origin and time required for delivery. Sealed Tenders, endorsed "Tenders for Road Reinforcement." to the Town Clerk, Court House, Fair Street, Drogheda, by 11 a.m. Sept. 30.

Sept. 30.

Dundee.—Supply and delivery of whin or granite kerbstones for City Council. Applications to the City Engineer, 21 City Square. Dundee. Tenders by Sept. 27.

Portsmouth.—Supply and delivery of 1,892 apron signs and 640 conditions plates, to be made of laminated plastic or other suitable material, for fixing to existing standard "P" signs and 640 pairs brackets, mild steel rust-proofed or other suitable material, for City Council. Applications to the Supplies Officer, Central Depot, Eastern Road, Portsmouth. Tenders by September 26.

#### PLANT AND MECHANICAL TRANSPORT

Belfast.—Supply of the following, for Ulster Folk Museum Trustees: (a) Diesel tractor and tipping trailer; (b) triple gang mowers; (c) motor scythe; (d) motor mower; (e) monkey winch; (f) power chain saw. Documents from the Director, Ulster Folk Museum, 53 University Street, Belfast, 7. Tenders by September 27.

\*Bournemouth, Hants.—Supply of electric trucks and battery chargers, for B.C. Tenders by November 1.

September 27.

\*Bournemouth, Hants.—Supply of electric trucks and battery chargers, for B.C. Tenders by November 1.

\*Bournemouth, Hants.—Supply of 2 ton van for B.C. Tenders by November 1.

Carmarthenshire.—Supply and delivery of the following for C.C.: Two 3-ton diesel lorries with normal control. The successful tenderer will be expected to take two 3-ton Austin lorries in part exchange. Documents from J. L. Richard, county engineer and surveyor, County Hall, Carmarthen. Tenders by Sept. 28.

Cookstown, Tyrone.—Supply of a gang mower with triple units each having cutting width of 30in. for U.D.C. Tenders to the Clerk of the Council, Town Hall, Burn Road, Cookstown, by 4 p.m., Sept. 25.

Dundee.—Supply and delivery of two refuse collection vehicles with compression type body and diesel engines, for City Council. Documents from Cleansing Superintendent, 28 East Dock Street, Dundee. Tenders by Sept. 30.

Garforth, Yorks.—Supply of one Karrier Bantam dual tip 10/12 cu, yd. refuse collector with diesel engine, double cab, 27 x 6 tyre equipment, rubber rear wings, painted and lettered and delivered with registration plates, for U.D.C. Tenders in plain sealed envelopes, endorsed "Refuse Collector," to E. Wigglesworth, clerk to the council, Council Offices, Garforth, Leeds, by September 30.

Heywood, Lancs.—Replacement of a Karrier Bantam (1948) and a Karrier Ck.3 (1948) for B.C. Both existing vehicles are to be taken in part exchange. Documents from the Borough Engineer, Municipal Buildings, Heywood, Tenders by Oct. 2.

Liverpool.—Supply and delivery of seven diesel engine chasis and cabs and one 10cwt. van for City Council. Documents from the City Engineer and Surveyor, Municipal Building, Liverpool, 2. Tenders by Oct. 16.

Liverpool.—Supply and delivery of four diesel engine rotary air compressors for City Council. Documents from the City Engineer and Surveyor, Municipal Building, Liverpool, 2. Tenders by Oct. 16.

and Surveyor, Municipal 1 pool, 2. Tenders by Oct. 16.

#### PLAYING FIELDS, PARKS, ETC.

PLAYING FIELDS, PARKS, ETC.

Belfast.—Supply and delivery of rose bushes to Parks and Cemeteries Department, for City Council. Documents from Parks and Cemeteries Department, Botanic Gardens Park, Belfast, 7. Tenders by September 27.

Breconshire.—Provision and planting of trees and shrubs at the Brynmawr Comprehensive School, Rhydw Site, Brynmawr, for C.C. Documents from the County Architect, Rhyd Offices, Brecon, by September 25.

\*Lancashire.—Development of playing fields, for C.C. Apply by October 4.

\*Tottenham, Middx.—Construction of five hard tennis courts, for B.C. Deposit £2. Tenders by October 9.

#### ROADS, BRIDGES AND SITE WORKS

\*Altrincham, Ches.—Making-up of Abbotsford Grove for B.C. Deposit £2 2s. Tenders by Oct. 2.

\*Barnet, Herts.—Making-up of Grange Avenue for U.D.C. Tenders by Sept. 28.

\*Barnstaple, Devon.—Widening of the Long Bridge at Barnstaple, for Ministry of Transport, including the following works, to be comprised in one contract: (1) Demolition of portions of the existing bridge; (2) construction of new work in the above tidal water, using concrete and natural stone masonry; (3) partial reconstruction of the existing bridge; (4) road surfacing, including realignment at approaches to the bridge and making good at junctions with existing roads, Documents from Posford, Pavry and Partners, consulting engineers, Abbey House, Victoria Street, Westminster, London, S.W.I. Deposit £25 cheque payable to Ministry. Tenders by November 15.

\*Benfleet, Essex.— Making-up New Park Road and Croft Road for U.D.C. Apply by Oct. 2. Deposit £2 2s.

Road and Croft Road for U.D.C. Apply by Oct. 2. Deposit £2 2s.

Blaenavon, Mon.—Resurfacing roads, for U.D.C., including scarifying and the laying of bituminous macadam. Documents from the Surveyor's Department, Council Offices, Blaenavon, Deposit £2 2s, Tenders by September 29.

Bridgend, Glam, — Construction of the Brackla Ring Road (Tremains Road), for U.D.C., comprising providing foundations and surfacing approximately 2,600 sq. yd. of footpaths, together with surface water sewerage and appurtenant works. Documents from the offices of the Engineer and Surveyor, Council Offices, Glan Ogwr, Bridgend. Deposit £2 2s. Tenders by September 30.

"Burnley, Lancs.—Making-up of six streets, for B.C. Deposit £2. Tenders by October 17.

Bury, Lancs.—Construction of tubular steel footbridge at Brandlesholme Road, 90ft, span and 6ft, wide, and ancillary works, for B.C. Documents from Borough Engineer, Town Hall, Bury. Deposit £2 2s. Tenders by October 7.

"Cannock, Staffs.—Roads and savage at her

October

\*Cannock, Staffs.—Roads and sewers at bus station for U.D.C Deposit £2 2s. Tenders by Oct. 9.

station for U.D.C. Deposit £2 2s. Tenders by Oct. 9.

Caterham and Warlingham, Surrey.—Widening and improvement of Burntwood Lane, Caterham, between its junction with Whyteleafe Road and Stafford Road, for U.D.C. The works include the excavation of approximately 8,800 cu, vd. of earth and chalk, the construction of 5,000 sq. vd. of new carriageway and the resurfacing of 6,700 sq. vd. of existing carriageway, the laying and re-laying of 2,800 lin. vd. of kerbing, the construction and resurfacing of 3,800 sq. vd. of footpath, the laying of 1,400 lin. vd. of footpath edging, the turfing of 4,500 sq. vd. of verge and bank, surface water drainage, and other incidental works. Applications to the Engineer and Surveyor, Council Offices, Caterham. Deposit £2 2s. Tenders by October 6.

verge and bank, surface water drainage, and other incidental works. Applications to the Engineer and Surveyor, Council Offices, Caterham. Deposit £2 2s. Tenders by October 6.

Caterham and Warlingham, Surrey.—Construction of a footway and small parking area at The Crescent, Woldingham, for U.D.C. The works include the provision of about 170 lin. yd, of new kerbs; the construction of about 400 sq. yd. of new footway and 290 sq. yd. of new carriageway in bitumen macadam, together with alterations to surface water drainage, and accommodation works. Applications to the Engineer and Surveyor, Council Offices, Caterham. Tenders by October 6.

\*Chatham, Kent. — Reconstruction of Chatham Hill (south side), for B.C. Deposit £2 2s. Tenders by October 2.

Chislehurst and Sidcup, Kent.—Resurfacing Summer Hill and Edgebury. Chislehurst, and Marlborough Park Avenue. Sidcup, an area of approximately 11,000 sq. yd. for U.D.C. Documents from the Engineer and Surveyor, Manor House, Sidcup. Deposit £2 2s. Tenders by Sept. 25.

\*Colwyn Bay, Denbighs.— Resurfacing of trunk road A.55 for B.C. Tenders by Oct. 9.

Cork, Eire. — Supply, spreading and compacting of ready mixed dry lean concrete for City Council. Documents from the City Manager and Town Clerk, City Hall, Cork. Tenders by Sept. 27.

\*Dover.—Road improvement works, for B.C. Deposit £2 2s. Tenders by Oct. 9.

East Riding.—York-Hull trunk road, A.1079, Improvement at Hayton, for C.C., including the construction of approximately 600 lin. yd. of new road, together with an 18ft. span reinforced concrete bridge. The works consist of site clearance, fencing, drainage, earthworks, road construction and bridge construction, together with the demolition of the old bridge and a building. Documents from the County Surveyor, County Hall, Beverley. Deposit £5. cheques payable to C.C. Tenders by Oct. 9.

\*Farnham. Surrey.—Resurfacing (part) South Street for U.D.C. Tenders by October 2.

\*Farnham. Surrey.—Resurfacing (part) South Street for U.D.C. Tenders by October 2.

\*Farnham. Surrey.—

ber 27.

\*Leeds.—Private street works, for City
Council. Deposit £1 ls. Tenders by Octo-

ber 5.

Leicester. — Scraptoft (Thurnby) housing estate (County portion), contract 12, construction of kerbing, footways and verges, for City

Council, including: 3,000 lin. yd. kerbing, 7,000 lin. yd. precast concrete edging kerb; 10,400 sq. yd. bitumen macadam footway; 17,000 sq. yd. turfing in verges and open spaces. Documents from John L. Beckett, city surveyor, Town Hall, Leicester. Deposit £1 ls. Tenders by October 9.

Lincoln.—Surfacing of footpaths—Canwick and Newport cemeteries, Arboretum and Boultham Park, for City Council, including surfacing 5,000 sq. yd. of footpaths in Breedon gravel and 3,400 sq. yd. of surface dressing with cold emulsion and ½in. chippings. Applications to City Engineer and Surveyor, Silver Street, Lincoln. Deposit £2 2s., cheques payable to Corporation. Tenders by September 30.

Manchester.—Footbridge over Altrincham Road at Wythenshawe Baths. Design, supply and erection of a 45ft, span steel footbridge, together with supporting trestles and stairways, for City Council. Documents from the City Surveyor, Town Hall, Manchester, 2. Tenders by October 4.

Manchester.—Paving and completing of Crescent Range, Victoria Park, approximately 1,100 sq. yd. of bitumen macadam carriageway, 1,000 sq. yd. of asphalt sand carpet footpaths, and all ancillary works, for City Council. Documents from the City Surveyor. Town Hall, Manchester, 2. Tenders by October 2.

Manchester.—Soil investigation at the site of proposed Fairfield Secondary School, for

Manchester.—Soil investigation at the site of proposed Fairfield Secondary School, for City Council. Documents from the City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Oct. 2.

City Council. Documents from the City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Oct. 2.

Mangotsfield, Glos.—Following works for U.D.C.: (1) Extension of Teewell Avenue, Staple Hill—approximately 110 lin. yd. of road 30ft, wide, including excavation road and footpath construction, stormwater drainage, 40 super, yd. of boundary walls and ancillary works; (2) Salisbury Gardens, Downend—approximately 43 lin. yd. of road 36ft, wide, including excavation, road and footpath construction and ancillary works; (3) Farm Road, Downend—approximately 99 lin. yd. of road 30ft, wide, including excavation, road and footpath construction, stormwater drainage and ancillary works. Documents from the Engineer and Surveyor, Council Offices, 26 South View, Staple Hill, Bristol, Deposit 22 2s. Tenders by October 3.

Muckamore, Antrim. — Improvement to college entrance and avenue, Greenmount Agricultural College, Muckamore, for Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast. Tenders by Oct. 3.

Newtownards, Down.—Laying two-coat and single-coat hot rolled asphalt, covering an area of approximately 15,000 sq. yd. of carriageway on Frances Street and Belfast Road, for B.C. Documents from the Borough Surveyor's Office. Town Hall, Newtownards. Deposit 33s. Tenders by Oct. 2.

North Riding.—Following, required during the financial year ending March 31, 1963, for C.C.: (1) Heating and planing of roads; (2) white line plastic material, with alternative quotation for machine laying complete. Applications to the County Surveyor, County Hall, Northallerton, enclosing a stamped addressed foolscap envelop. Tenders by October 16.

Penarth, Glam.—Making-up of the undermentioned streets, for U.D.C.: (a) Dowland

addressed October 16.

October 16.

Penarth, Glam.—Making-up of the undermentioned streets, for U.D.C.: (a) Dowland Road (part) and Handel Close (part); (b) Cornerswell Place (part) Documents from the office of the Engineer and Surveyor, Council Offices, West House, Stanwell Road, Penarth. Tenders by September 30.

\*Port Talbot, Glam.—Proposed filling of Baglan Moors—part I, for B.C. Deposit £2 2s. Tenders by October 16.

\*Preston, Lancs.—Construction of extension of Harewood Road for B.C. Deposit £2 2s. Tenders by Oct. 9.

Tenders by Oct. 9.

Tenders by Oct. 9.

Rothwell, Yorks.—Construction of roads and sewers Town Street (east), Carlton, for U.D.C. The contract includes approximately 1,800 sq. yd. of carriageway with cold asphalte surface and concrete channel and kerbing and 900 lin, yd. of small diameter sewer, together with footpaths and boundary walls. Documents from R. A. Easdale and Son, architects, County Chambers, 12 Wesley Street, Castleford. Deposit £2 2s. Tenders by September 27.

Sandown-Shanklin, 1. of W.—Following for U.D.C.: Reconstructing part of Regent

Sandown-Shanklin, I. of W.—Following for U.D.C.: Reconstructing part of Regent Street, Shanklin, such work including the excavation of the carriageway, construction of a concrete foundation and surfacing with macadam, rekerbing, etc. Documents from the Surveyor's Office, Town Hall, Sandown. Denosit £2 2s. Tenders by Sept. 30.

\*Skipton, Yorks.—Making-up of Marton Street and Gisburn Street, for U.D.C. Deposit £1 ls. Tenders by October 16.

Slough, Bucks.—Reconstruction of Dover Road bridge, for B.C. Civil engineering contractors experienced in: (1) Demolition of

bridges by explosives; and/or (2) construction of bridges across railway tracks, are invited to submit applications, together with two engineering references for works of a similar nature, to the Borough Engineer, Town Hall, Slough, by noon, September 28.

Smethwick, Staffs.—Cranford Street industrial site. Construction of approximately 980 sq. yd, of carriageway and 375 lin. yd. of 6in. x 9in. diameter sewers, for B.C. Written applications to the Borough Engineer. The Council House, Smethwick. Deposit £2 2s., cheque payable to Borough Treasurer. Plans seen at the Borough Engineer's Department, 277 High Street, Smethwick. Tenders by October 3.

"Stafford.—Stafford Street / Chapel Street improvement for B.C. Tenders by Oct. 5.

"Stafford.—Approach works to Rickerscote Road Bridge for B.C. Tenders by Oct. 6.

"Staines, Middx.—Improvement works, Littleton Lane, for U.D.C. Deposit £2 2s. Tenders by Oct. 5.

"Stoke-on-Trent, Staffs.—Construction of street works at housing redevelopments are

Tenders by Oct. 5.

\*Stoke-on-Trent, Staffs.—Construction of street works at housing redevelopments at:
(a) Port Vale Street and Reid Street area; and (b) Sant Street and Globe Street area, for City Council. Deposit £2. Tenders by October 4.

(a) Port Vale Street and Reid Street area; and (b) Sant Street and Globe Street area, for City Council. Deposit £2. Tenders by October 4.

\*Stoke-on-Trent. — Widening of Milton Road, Sneyd Green, for City Council, Deposit £3, Tenders by October 11.

\*Stratford-on-Avon, War.—Surfacing, etc., at Blackford Pastures housing site for R.D.C. Deposit £2 2s. Tenders by Oct. 12.

Sunbury-on-Thames, Middx.—Making-up of Heathcroft Avenue (part), with A.S.P. footways and ancillary works, for U.D.C. Documents from the office of the Engineer and Surveyor, Council Offices, Sunbury-on-Thames, Tenders by November 6.

\*Sunderland, Dur.—Site preparation works, for B.C. Deposit £2 2s. Tenders by October 4.

\*Sunderland, Dur.—Site preparation works, for B.C. Deposit £2 2s. Tenders by October 4.

Sutherlandshire. — Invershin - Ledmore - Lochinver Road road works, route A.837—section Ledmore-Stonechrubie Farm (approximately 4½ miles), contract 23, for C.C. Documents from the office of the County Road Surveyor, Brora. Deposit £15, cheques payable to C.C. Plans also seen at: The Scottish Home Department (Roads Division), Bankhead Avenue, Sighthill, Edinburgh, 11; The Scottish Home Department (Roads Division), 33 Academy Street, Inverness. An engineer will meet contractors at 11 a.m. on September 26 at Ledmore Junction to show them over the route. Tenders by October 17.

Sutton Coldfield, War.—Reconstruction of part of Hill Village Road, stage I, for B.C. The work consists of approximately 360yd, of 99in. surface water sewers, partly in private land, and approximately 3,900 sq. yd. of carriageway reconstruction, together with kerbing, paving, and ancillary works. Documents from the office of the Borough Surveyor, Council House, Sutton Coldfield. Deposit £2. Tenders by October 11.

Thedwastre, Suffolk.— Construction of roads, footpaths and surface water drainage at the following housing estates, for R.D.C.: Cockfield Road, Felsham; Chapel Road, Wattisfield. Documents from J. H. Warren, architect, 5 Angel Hill, Bury St. Edmunds. Tenders by October 4.

"Thurrock, Essex.—Construction of foundations and piers for overline bridge B for U.D.C. Deposit £2 2s. Tenders by Sept. 29.

"Wandsworth.—Reinstatement of trenches, for B.C. Apply by October 2.

West Riding,—Resurfacing playground at Mickletown C.P. School, Methley, for C.C. Documents from H. Thorpe, Divisional Education Officer, 2 St. John's Square, Wakefield. Tenders by October 2.

# SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Disposal

Ashby-de-la-Zouch, Leics.—(a) Swepstone and Newton Burgoland sewerage and sewage disposal; (b) Newbold and Giffydam sewerage and sewage disposal; (b) Newbold and Giffydam sewerage and sewage disposal, for R.D.C., including either or both of the following contracts: A—the laying of approximately 6,90yd, of 9in. and 6in. diameter concrete and salt glazed ware sewers, together with manholes and house connections, the construction of two sewage pumping stations, and the laying of approximately 1,750yd, of 4in, diameter spun-iron pumping main, mostly at Swepstone and Newton Burgoland, and the construction of additional sludge drying beds at Snarestone sewage disposal works, approximatel location of scheme—four to five miles south of Ashby-de-la-Zouch, period of contract, 18 months: B—the laying of approximately 5,900yd, of 12in., 9in. and 6in. concrete sewers, together with manholes and house connections, in Newbold and Griffydam, and the construction of extensions to Worthington sewage disposal works, comprising humus tank, sludge drying beds, recirculation pumphouse and associated paths, pipework, etc., approximate location

of scheme—three to four miles north-east of Ashby-de-la-Zouch, period of contract, 15 months, Both contracts will be undertaken simultaneously. Documents from Pick, Everard, Keay and Gimson, consulting engineers, 6 Millstone Lane, Leicester, Deposit 55 s., payable to R.D.C. Tenders by October 16.

engineers, 6 Milistone Lane, Leicester, Deposit £5 5s., payable to R.D.C. Tenders by October 16.

Barnstaple, Devon.—East Pilton sewerage scheme part III, for B.C., including the laying of approximately 60 lin. yd. of 12in. concrete tube, 400 lin. yd. of 6in. glazed stoneware pipe, 300 lin. yd. of 9in. glazed stoneware pipe and 12 manholes. Documents from the Borough Surveyor, The Castle, Barnstaple. Deposit £2 2s. Tenders by September 27.

Birmingham.—Supply, delivery, installation and commissioning of a magnetic flow meter unit 12in. diameter and including primary element chart recorder with indicator and integrator and all interconnecting cabling as necessary for the layout, for Birmingham Tame and Rae District Drainage Board. Documents from the Engineer to the Board, Rookery Park, Erdington, Birmingham, 24. Tenders by Oct. 2.

Brecknock.-Aber-Clydach sewerage scheme for R.D.C., including construction of approxi-mately 199 lin. yd. 6in, diameter stoneware pipe sewer and including manholes and other appurtenant works together with a sewage disposal works comprising septic tank and rotary filter. Documents from W. J. Rees, surveyor, Council Offices, Oxford House, The Watton, Brecon. Deposit £2 2s. Tenders by

rotary filter. Documents from W. J. Rees, surveyor, Council Offices, Oxford House, The Watton, Brecon. Deposit £2 2s. Tenders by Oct. 11.

Brixworth, Northants.—Laying of approximately 6,200 yd. of 12in., 9in. and 6in. diameter cast-iron concrete and salt glazed ware sewers, together with manholes and house connections, and the construction of a sewage disposal works, for R.D.C., comprising screening and storm overflow chambers, settling tank, two 38ft. diameter filters, humus tank, sludge drying beds, sludge pumping station and attendant pipework, paths and roads, etc., at Cottesbrooke and Creaton. Period of contract, 18 months. Documents from Pick, Everard, Keay and Gimson consulting engineers, 6 Millstone Lane, Leicester. Deposit £5 5s., payable to R.D.C. Tenders by October 6.

Burnley, Lancs.—Sewerage, road improvements and appurtenant works, Towneley Smallholdings, for B.C., including the laying approximately 1,600 lin. yd. of 9in. diameter sewer, re-laying of house drains, surfacing in bituminous macadam of approximately 8,500 sq. yd. of roadway, the fitting of new toilets to 35 dwellings, and the provision and construction of an ejector and chamber. Documents from the Borough Engineer and Surveyor, 22-24 Nicholas Street, Burnley, Deposit £3. Tenders by October 6.

"Clacton, Essex.—Sewering at Colthorpe and Oakleigh Roads, for U.D.C. Deposit £2 2s. Tenders by October 7.

"Crediton, Devon.—Sandford sewerage and sewage disposal for R.D.C. Deposit £5 5s. Tenders by October 9.

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"Graditon, Devon.—Sandford sewerage and sewage disposal for R.D.C. Deposit £5 5s. Tenders by October 9.

"Graditon, Devon.—Sandford sewerage scheme for C.C. Documents from the County Engineer, Donegal, Eine.—Supply and installation of a 50-gallon ejector pump with air compressor and receiver for the Falcarragh sewerage scheme for

rintshire.—Reconstruction of stone culvert under trunk road A.494 for C.C. Tenders by Oct. 2.

"Gosport, Hants.—Piping of moat south of Palmerston Way for B.C. Deposit £2 2s. Tenders by Oct. 18.

Haverfordwest, Pembs. — Construction of approximately 900 yd. of surface water sewers of sizes ranging from 9in. to 42in. diameter, in three separate locations, contract 1. for B.C. Documents from John Taylor and Sons, consulting engineers, Artillery House, Artillery Row, Westminster, S.W.I. Deposit £2, cheque payable to B.C. Tenders by October 13.

Hinckley, Leics.—Following for U.D.C.: (1) Sewer-laying and first stage road works at the Moat House site, Burbage; and (2) sewer-laying and road works at Hall Drive, Stoke Golding. Documents from the office of the Surveyor, Argent House, St. Mary's Road, Hinckley. Deposit £1 each. Tenders by October 2.

"Hollingbourn, Kent.—Weavering Street sewerage for R.D.C. Apply by Oct. 9. Deposit £5.

Sewerage for R.D.C. Apply by Oct. 9. Deposit £5.

Isle of Ely.—Littleport, surface water drainage scheme, contract 3, for C.C., including the construction of approximately 600yd. of surface water sewer, ranging from 6in. to 12in. diameter, in Church Lane, Wisbech Road, Wellington Street and Globe Lane, Littleport. The contract includes precast concrete manholes, road gullies and connections. Documents from the County Surveyor, County Hall, March, Cambs. Tenders by Oct. 9.

\*Kingston-upon-Thames, Surrey.—Construction of surface water sewer at Richmond Road/Lower Ham Road, for B.C. Deposit £2 2s. Tenders by October 6.

\*Lowestoft, Suffolk.—Soil sewering at Gunton Hall estate for B.C. Deposit £2 2s. Tenders by Oct. 16.

Luton, Beds.—Construction of approximately 270 lin, yd. 24in, diameter surface water sewer, with manholes and incidental works, in Old Bedford Road, north of Barnfield Avenue, for B.C. Documents from Borough Engineer, Town Hall, Luton. Deposit £2 2s. Tenders by October 2.

Manchester. — Sanitary improvements at Mansfield Lodge, for City Council, Documents from City Architect, P.O. Box 488, Town Hall, Manchester, 2. Tenders by September 28.

\*Newark-on-Trent. Notts.—Construction of

Town Hall, Manchester, 2. Tenders by September 28.

\*Newark-on-Trent, Notts.—Construction of stage I of sewerage and sewage disposal scheme, for B.C. Deposit £5 5s. Tenders by October 23.

scheme, for B.C. Deposit £5 5s. Tenders by October 23.

Newport, Salop.—Sewerage and sewage disposal. Contract 2, for U.D.C. The work involves the construction of some 2,300 lin. yd. of concrete, spun-iron and glazed stoneware pipe sewers, varying in diameter from 21in. to 6in., with manholes, together with a sewage disposal works, comprising detritus tanks and storm overflow weirs, two sedimentation tanks, two bacteria beds, each 91ft, in diameter, two humus tanks, pumping station, office and store, and the modification of existing units to storm water tank and sludge drying beds, together with incidental works. Applications to W. P. Goldsbrough, clerk of the Council. Council Offices, Newport, by September 29, accompanied by a brief list of contracts recently completed, with special reference to those relating to sewerage and sewage disposal and to reinforced concrete construction. Plans seen by appointment at the offices of A. H. S. Waters and Partners, consulting engineers, 25 Temple Row, Birmingham 2.

Nidderdale, Yorks.—Laying of approxi-

offices of A. H. S. Waters and Partners, consulting engineers, 25 Temple Row, Birmingham 2.

Nidderdale, Yorks.—Laying of approximately 600yd. of 9in. concrete and spun-iron pipes and appropriate manholes for R.D.C. Documents from W. K. Rodwell, 40 North Street, Wetherby. Deposit £2 2s. by cheque payable to R.D.C. Tenders by Oct. 10.

\*Nottingham. — Construction of outfall sewers and roads and footpaths at Pleasant Row, Hyson Green, for City Council. Deposit £2. Tenders by October 10.

\*Petersfield, Hants.—Rebuilding filter walls at sewage disposal works for U.D.C. Deposit £2 2s. Tenders by Oct. 13.

Portsmouth.—Rudmore Road Stormwater overflow sewer, for City Council. The works include the construction of a stormwater overflow chamber and approximately 320 lin, yd. of 60in. diameter sewer, and ancillary works.

Documents from the City Engineer, 1 Clarence Parade, Southsea. Deposit £2. Tenders by September 29.

\*Rickmansworth, Herts.— Eastbury Farm estate, surface water drainage, for U.D.C. Deposit £2 2s. Tenders by Oct. 9.

\*Tadcaster, Yorks.—Sewer extension, Back Lane, Bilbrough, for R.D.C., including the laying of approximately 275 lin. yd. of 6in. diameter foul sewer. Documents from the Engineer and Surveyor, Council Offices, Tadcaster. Deposit £1 ls. Tenders by September 30. caster. ber 30.

ber 30.

Weston-super-Mare, Som.—Construction of Winterstoke Road sewer, including approximately 545yd. of 15in. diameter sewer with precast concrete ring manholes, for B.C. Documents from the Borough Engineer's Office, Town Hall, Weston-super-Mare, Deposit £2 2s. Tenders by October 2.

#### STREET LIGHTING

Dalton-in-Furness, Lancs.—Supply and installation of 12 group A sodium vapour lighting units, control gear and steel columns, including erection and wiring of equipment for U.D.C. Documents from A. W. Charity, engineer and surveyor, Town Hall. Dalton-in-Furness. Deposit £1 ls. Tenders by Sept. 25.

by Sept. 25.

Inverurie, Aberdeens.—Supply and erection of lighting columns and brackets on trunk road A.96, for B.C. The work provides for a change from existing lighting to sodium lighting, the re-positioning of varous lamp standards and the supply and installation of certain new equipment. Documents from Robert M. Bruce, burgh surveyor, Burgh Surveyor's Office, Town House, Inverurie. Tenders by Oct. 2.

\*Thurrock, Essex.—Street lighting on trunk road A.13 for U.D.C. Deposit £2 2s. Tenders by Oct. 3.

#### INTERNATIONAL

Argentine. — The Dirección Nacional de Vialidad calls for offers for five road construction projects in various provinces. Closing dates vary between 16th October and 26th December, 1961, estimated costs between 135 and 514 million pesos. Partially financed World Bank. Information available from Economic Counsellor, 111 Cadogan Gardens. S.W.3; SLOane 4388. Notice is also given of Public Tender 3998, import of road graders,

447,901,200 pesos. Closing date October 6, 1961, Sala de Licitacions, Dirección Nacional de Vialidad, Avenida Maipú 3, Planta Baja, Buenos Aires, Financed World Bank.

Sudan.—Civil engineering works for Khashm El Girba resettlement project, for Ministry of Works, Documents from the Sudan Embassy, 3 Cleveland Row, St. James's, London, S.W.I.

#### **AWARDS**

#### BUILDING AND DECORATING

BUILDING AND DECORATING
(See also Housing Schemes)

Alrewas, Staffs.—Erection of motor-car showroom and offices at the corner of Main
Street and Rykneld Street for J. T.
Leavesley, Ltd.—S. W. Clarke (Contractors), Ltd., 159 Efflinch Lane, Bartonunder-Needwood. Estimated cost £25,000.
Gray and Ballinger, 24 Bird Street, Lichfield are the architects, and Henry Vale and
Sons, 47 Waterloo Road, Wolverhampton,
are the quantity surveyors for the scheme.
Work has just commenced.

Aylesbury, Bucks.—Erection of 44 garages at
Grenville Road for B.C.—Bell and Webster,
Essex Road, Hoddesdon, Herts., £2,711
(recommended).

Barnsley, Yorks.—Conversion of waste water
closets and the provision of new w.c's for
B.C.—S. V. Flathers, Ltd., 26 Broadway,
Barnsley, £1,754 (recommended).

Berkhamsted, Herts.—Erection of a building
to house cleansing vehicles at the rear of
offices at Boxwell House, 275 High Street,
for R.D.C.—L. Bedford, Potten End, Berkhamsted, £1,385 (accepted); E. W. Rayment
and Co., £1,970; Kiles Construction Co.,
£2,630.

Billingham, Dur.—Design and construction of
a west area workshop and depot for LC.I.

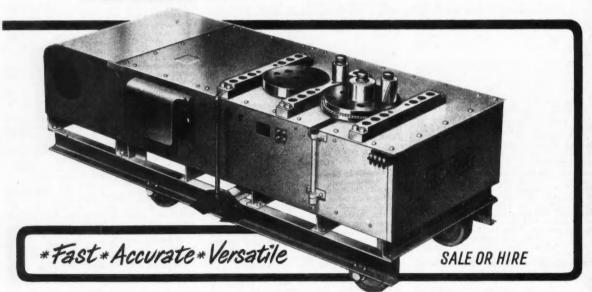
Billingham, Dur.—Design and construction of a west area workshop and depot for I.C.I., Ltd.—T.G. Construction Co., Ltd., Ettings-hall, Wolverhampton. Estimated cost £60,000. Work has commenced.

£60,000. Work has commenced.

Birmingham.—Following for City Council:
Extensions at Perry Beeches Secondary
School—J. and F. Wootton, Ltd., Pinfold,
Bloxwich, Walsall, £29,856; remodelling at
Stirchley Junior and Infants' School—W. T.
Pickering, 1-3 Alcester Road, Birmingham, 13, £21,196; construction of 98
garages at Bartley Green, Harborne and
Northfield—M. Woods, Ltd., 76a Alcester
Road, Kings Heath, Birmingham, 14,
£27,462. Road, £27,462.



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Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Saffron Walden, Southampton and Belfast

Birmingham.—Erection of industrial premises fronting Summer Lane and Henrietta Street for Frank Shaw and Co., Ltd.—Alex. Fraser, Ltd., Alum Rock Road, Birmingham. Philip Shelcher and Partners. Solihull, War., is the architect, and Collins and Britton, 39 Bennetts Hill, Birmingham, 2, are the quantity surveyors for the scheme.

Blackburn, Lanes.—Erection of a new ambulance station at George Street West/Addison Street for B.C.—Rimmer Kitchen (Bolton), Ltd., rear 93 Manchester Road, Bolton, £27.533 (recommended).

Cheltenham, Glos.—Erection of a hostel block at St. Paul's College, Rosehill, for the Council of the Cheltenham Clore, Ford and Weston, Ltd., Osmaston Road, Derby, £44.497. Healing and Overbury, Rodney Lodge, Rodney Road, Cheltenham, are the architects, and E. R. Babbs and Sons, 20 Clarence Street, Gloucester, are the quantity surveyors for the scheme.

Cheltenham, Glos.—Erection of a private patients' wing over the department of pathology at the General Hospital for the South Western Regional Hospital Board—Ford and Weston, Ltd., 542 Osmaston Road, Derby. Estimated cost £40,000. Healing and Overbury, Rodney Lodge, Rodney Road, Cheltenham, are the architects, and E. P. Rowntree, 53 Brunswick Road, Gloucester, is the quantity surveyor for the scheme.

Darlington, Dur.—Construction of annexe at North Road Locomotive Works for British Transport Commission—D. Blackett and Son, Bondgate, Darlington, Additional lairage at Darlington abattoir, for B.C. E. A. Tornbohm, borough architect—Direct Labour £6,547.

Dewsbury, Yorks.—Erection of the new Crown Building opposite the fire station—Pickles Bros. (Builders), Ltd., Mille Thorn, Halifax (site work commenced).

Building opposite the fire station—Pickles
Bros. (Builders), Ltd., Mile Thorn, Halifax
(site work commenced),
Didcot, Berks.—Extension of school for C.C.
—Frederick J. Minns and Co., Ltd., Botley

Oxford. Dorchester.—Following for B.C.: Supply and erection of 11 prefabricated garages at

Elizabeth Place—Marley Concrete, Ltd., Hatchpond Road, Waterloo, Poole, £836; construction of four lock-up garages at St. Margaret's, Linden Avenue—R. R. Ricardo, Ltd., 10 Fordington Green, Dorchester, £827 (recommended, subject to Ministry approval).

Durham.—Construction of control tower at Lamesley marshalling yard, near Chester-lestreet for British Transport Commission—Richard Costain, Ltd., 16 Great North Road, Newcastle upon Tyne, £90,000.

Essex.—Erection of hostel for elderly

Pessex.—Erection of hostel for elderly persons, Harold Hill, Romford, for C.C. H. Conolly, county architect—L. and S. Builders (Brentwood), Ltd., 36 Cromwell Road, Brentwood, £81,600. Work commenced.

menced.

Harrow, Middx.—Extensions to the existing store at Station Road for Sopers of Harrow, Ltd.—J. Jarvis and Sons, Ltd., 239 Yauxhall Bridge Road, London, S.W.I. Estimated cost £120,000. Deacon and Laing, architects, 65 Goldington Road, Bedford, and L. A. Francis and Sons, quantity surveyors, Vernon House, Sicilian Avenue, Bloomsbury Square, London, W.C.I. Work commenced.

commenced.

Hemel Hempstead, Herts.—Erection of a new workshop and offices at Maxted Road for General Electric Co., Ltd.—Allen Fairhead and Sons, Sydney Road, Enfield, Middx. Estimated cost £150,000. Clifford Tee and Gale, architects, 5 Buckingham Palace Gardens. London, S.W.l, and Reynolds and Young, quantity surveyors, 87 Shaftesbury Avenue, London, W.l. Work commenced.

Hull. – Erection of a three-storey building comprising shops, showrooms, etc., at 20-30 Brook Street, for City Council—Quibell and Son, Ltd., 354 Beverley Road,

Hull.

Islington.—Following for B.C.: Provision of wire guards to protect the windows of the community centre at York Way Court estate—Supreme Fencing, Ltd., 10 Station Road, Watford, Herts., £902; external redecoration at Brecknock Road estate and City and Queens Mansions—Kenny and Revnolds, Ltd., 28 Loraine Road, London, N.7, £13,574; external redecoration of Blythe, Leyden, Warltersville and Coleman Mansions and the Highlands—G. Jones and Son (Contractors), Ltd., 27b Kensington Church Street, London, W.8, £11,538;

internal and external painting and sundry maintenance works to east loading bay and other buildings at Ashburton Grove

internal and external painting and sundry maintenance works to east loading bay and other buildings at Asbburton Grove Depot—F. Troy and Co., Ltd., Troy House, Elmgrove Road, Harrow, £1,899 (recommended).

Lambeth.—Erection of new tube station buildings and office block at Lambeth North tube station and 112 Westminster Bridge Road—Truscon, Ltd., 35 Lower March, London, S.E.l. Devereux and Davies, architects, 3 Gower Street, Bedford Square, London, W.C.l, H. R. Heasman and Partners, quantity surveyors, 5 Bloomsbury Square, London, W.C.l, and Clarke, Nicholls and Marcel, consulting engineers, 21 Westbourne Grove, London, W.2.

Leeds.—Construction of a dining hostel, gymnasia and alterations to the teaching block at the City of Leeds Training College, Becketts Park, for City Council—F. Shepherd and Son, Ltd., Blue Bridge Lane, York. Estimated cost £700.000. G. Alan Burnett, architect, 8 Blenheim Terrace, Leeds, in collaboration with J. R. Sheridan-Shedden, city architect. Work to commence end of this month.

Llandrindod Wells, Radnors.—Erection of public lavatories, Town Hall grounds, for U.D.C. R. J. Morris, engineer—J. L. Griffiths and Co. Tremont Road, Llandrindod Wells, £6,650 (work to commence September 25).

London.—Erection of building comprising above.

U.D.C. R. J. Morris, engineer—J. L. Griffiths and Co., Tremont Road, Llandrindod Wells, £6,50 (work to commence September 25).

London.—Erection of building comprising shops, offices and flats at 112-130 Edgware Road, for Nutford Investments—Gilbert-Ash, Ltd., 2 Stanhope Gate, London, W.I. Estimated cost £185,000. Fitzroy Robinson and Partners, architects, 3 Grays Inn Square, London, W.C.1, and Lowe and Rodin, quantity surveyors, 171 Victoria Street, London, S.W.1.

Maghull, Lanes.—Construction of a shopping centre at Maghull, near Liverpool, for Ravenseft Properties, Ltd.—Holland & Hannen and Cubitts (North West), Ltd.. New Chester Road, Bromborough, Ches. Estimated cost £162,000. Kenneth Wakeford, Jerram and Harris, architects, 7 Connaught Place, London, W.2, and Cyril Sweett and Partners, quantity surveyors, 37 Bedford Row, London, W.C.1.

Middlesbrough, Yorks.—Construction of boiler-house and other buildings at Newport marshalling yard for British Transport Commission—L. C. Abdale, Ltd., Weir Street, Darlington.

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RESERVES EXCEED £1,500,000

Ca

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Conversion of the Palladium Cinema, Eastbourne Road, into shops for Ceres Investments, Ltd. S. John Hill and Partners, architects, Russell Chambers, 2 Whitfield Street, Gloucester—Brixabur Builders, Ltd., 21 Clarence Street, Gloucester.

Newcastle upon Tyne.—Erection of Augustine's R.C. School. David Br architect, 10 Lambton Road, Jesm Newcastle upon Tyne—Ralph Bowey Son, William Street South, Gosf Northumb. David Brown, Tesmond Gosforth

Northumb.

Newport, Mon.—Supply of one Unifilter for Stow Hill Baths for B.C.—United Filters and Engineering Co., Ltd., 4 Burston Road, Putney, London, S.W.15, £5,295 (recommended, negotiated tender).

Northern Ireland.—Erection of a 150-bed hospital at Dungannon for Hospitals Authority F. B. McKee and Co., Ltd., 9 Shore Road, Belfast, 9. Estimated cost £750,000.

F. B. McKee and Co., Ltd., 9 Shore Road, Belfast, 9. Estimated cost £750,000.

North Riding.—Following for E.C.: Erection of Whitby West Primary School. Grenfell Baines and Hargreaves, architects, Preston. Lancs.—John Laing Construction Co., Dalston Road, Carlisle, £62,000.

Marlton County Junior School—William Birch and Son, Spen Lane, Yorks., £53,882.

W. W. Atkinson, architect, 4 Raymond Buildings, Grays Inn, London, W.C.I, and Davis, Belfield and Everest, quantity surveyors, 9 Ashley Place, London, S.W.I.

Infants' school at Ormesby—Emco Builders, Ltd., 7 King's Road, North Ormesby, £51,049. D. C. Hall, architect, 6 Masons Yard, Duke Street, St. James's. London, S.W.I., and Davis, Belfield and Everest, quantity surveyors, 9 Ashley Place, London, S.W.I.

Place, London, S.W.I.

Oxford.—Erection of a block of shops and offices at 274 Banbury Road for the Oxford Committee for Famine Relief—Hinkins and Frewin, Ltd., Canal Street, Oxford. Estimated cost £52,000. Geoffrey Beard of Stevens, Flavel and Beard, architects, 21 Turl Street, Oxford, and Henry Cooper and Son, quantity surveyors, 51a Cornmarket Street, Oxford. Work to commence October.

Oxford.—Following for City Council: External painting of 53 houses at seven sites, contract 96—S. Kushmar, 47 Ferry Road, New Marston, Oxford, £1,535; 205 houses, 72 flats and 21 garages at the Minchery Farm estate, contract 101—D, and J. Exlev (Decorators). Ltd., 113 Kingston Road, Oxford, £4,507 (recommended).

External painting of 30 flats and eight garages at Slade Close, contract 98—D, and

**Branch Offices and Plant Depots:** 

and WHEATLEY, OXON.

WINNERSH, WOKINGHAM, BERKS.,

J. Exley (Decorators), Ltd., £543 (recommended, lieu of previous tender).

Portsmouth.—Following for City Council: Modernisation of seven flats at Southwick House—R. W. Bailey, Ltd., £10.130 (recommended); Henry Jones and Son, Ltd., £10.479; Barnes and Elliott, £11,262. Erection of a youth centre at Paulsgrove—H. E. Collins, Ltd., Eastern Road, Farlington, Cosham, Portsmouth, £54,110 (recommended).

Provision of an additional biology block at Portsmouth Training College—John Hunt, Ltd., Cleveland Road, Gosport, £11,520 (recommended).

Ruislip-Northwood, Middx.—Painting of 170 sewer vent columns for U.D.C.—Abacus Municipal, Ltd., Sutton-in-Ashfield, Notts.

Scunthorpe, Lincs.—Erection of a new club and institute with domestic quarters over at Modder Street/Ashby High Street for The Ashby Working Men's Club and Institute — Lonsdale and Hubbard, Ltd., Scunthorpe, Estimated cost £28,500. Derek W. Brown, 24a Chapel Street, Scunthorpe, is the architect, and Stephen Saxby, 23 Dunstall Street, Scunthorpe, is the quantity surveyor for the scheme. Work has just commenced.

Shildon, Dur.—Erection of shops at Church Street for Ceres Investments, Ltd., London,

Shildon, Dur.—Erection of shops at Church Street for Ceres Investments, Ltd., London, E.C.2 S. John Hill and Partners, archi-tects, 2 Whitfield Street, Gloucester— Brixabur Builders, Ltd., Clarence Street, Gloucester.

South Shields, Dur.—Construction of stores block at Tyne Dock motive power depot for British Transport Commission—Richard Costain, Ltd., 16 Great North Road, New-castle upon Tyne,

Castle upon Tyne,

Stockton-on-Tees, Dur. — Erection of a new
Grammar School for the Durham Diocesan
Board of Finance. P. R. Middleton and
artner, architects, 111 Albert Road.
Middlesbrough — Marsh (Builders), Ltd.,
Grangefield Road, Stockton on Tees.
£150,000 Work commenced.

Stoke-on-Trent, Staffs.— Erection of the Ubberley-Bentilee Methodist Church at the junction of Aylesbury Road and Winchester Avenue. Wood, Goldstraw and Yorath, architects, Tunstall, Stoke-on-Trent—Eardley and Whittaker, Ltd., 94 Millrise Road, Milton, Stoke-on-Trent. Estimated cost £40,000. Work has commenced.

menced.

Sunderland, Dur.—Erection of shops on the site of the Regent Cinmea, Ryhope Road, for Ceres Investments, Ltd. S. John Hill

and Partners, architects, 2 Whitfield Street, Gloucester — Brixabur Builders, Ltd., 21 Clarence Street, Gloucester. winton and Pendlebury, Lancs. — Repointing of Council houses, phase II, for B.C.—Lanes Construction Co., Ltd., 4 Campbell Road, Swinton, Manchester, 6s. 8d. per super. yd. (recommended, extension of contract). Swinton

tension of contract).

Yeovil, Som.—Erection of four shops, six maisonnettes and two bed-sitting-room flats comprising Sunningdale scheme B.5, for B.C.—W. G. Taylor and Sons (Weymouth), Ltd., £35,572 (recommended, subject to B.C.—W. G. Taylor Ltd., £35,572 (rec Ministry approval),

#### CLOTHING AND TEXTILES

Blackburn, Lanes,—Supply of uniform clothing for B.C.—Briggs, Jones and Gibson, Ltd., Enderley Mills, Newcastle-under-Lyme, Staffs., £2,217 (recommended).

#### DEMOLITION

Ashton-under-Lyne, Lancs.—Demolition of 52-58 Bradgate Street and the Church Inn, Charles Street, for B.C.—K. Shipley, Ashton-under-Lyne, £125 (recommended).

Dewsbury, Yorks.—Demolition of the Star Laundry at Upper Road, Batley Carr, for B.C.—J. B. Halstead, Hirstlands Mill, Hirst Road, Dewsbury, £100 (recommended). mended).

Salfash, Corn.—Demolition of 26 and 27
Fore Street, contract 3, for B.C. A. de
Barr, borough surveyor—Wadsworth Demolition and Excavation, Ltd., Sidmouth
Road, Exeter, £180. Work commencing next

Norfolk. -Wells-next-the-Sea, 'ells-next-the-Sea, Norfolk. — Demolition and site clearance of the properties in Theatre Yard and Stearmans Yard for U.D.C. A. E. Rogers, engineer and surveyor—W. Monsey, Dereham, £600 (accepted); Harry Pointer, Ltd., £725; Edward J., Edwards, £865; A. R. Cleghorn and Co., Ltd., £850; Oliver Sear, Ltd., £994; A. B. Mason and A. W. Hall, £3,900; Hancock Bros., £1,420; J. J. Flint and Co., £680. Work to commence October.

#### ELECTRICAL

Braintree and Bocking, Essex.—Internal wiring of 56 existing council houses at Wheatley Avenue in two contracts of 28 houses per contract, for U.D.C. M. R. Richards, engineer—Claude Harvey, Ltd., 10 East Street, Coggeshall, Essex, £2,008 (work to commence October 1).

OXFORD 78241

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WHEATLEY 386 & 344



PLANT

HIRE

Burton-upon-Trent, Staffs. — Installation of vehicle-actuated traffic signals at junction of Orchard Street, Union Street and New Street for B.C. — Automatic Telephone and Electric Co., Ltd., 48 Stoke Road, Shelton, Stoke-on-Trent (recommended).

Durham. — Hot. and cold water installation, and kitchen ventilation system at Staindrop Modern School for C.C.—I. Jeffreys and Co., Ltd., London, £20,081.

East Devon. — Supply of duplicate electrically powered pumps, with auxiliary equipment, for Colyford Booster Station, for Water Board. J. A. N. McGeoch, engineer—Sulzer Bros. (London), Ltd., Leeds, £1,228 (subject to Ministry approval).

Islington. — Renewal of electrical installations at the Town Hall and Public Hall, for B.C. — London Electricity Board, £20,288 (recommended, subject to Ministry approval).

#### FENCING

Carshalton, Surrey.— Supply and erection of approximately 45 lin. yd. of 6ft. high corrugated iron fencing on concrete posts, 17 lin. yd. of 4ft. high chain link fencing on angle-iron posts, 70 lin. yd. of 6ft. high chain link fencing on concrete posts, together with necessary gates, at Mill Lane, for U.D.C. F. J. Kennedy, engineer and surveyor—Fencework, Ltd., 14 Wood Street, Kingston-upon-Thames, £424.

Street, Kingston-upon-Thames, £424.

Gloucester.—Fencing and reconstruction of a portion of the paved area fronting 5-12 Bridge Road, Frampton-on-Severn, for R.D.C. J. S. Hopkins, engineer and surveyor—Turner and Pritchard, Barton Street, Gloucester, £1,680. Work about to commence.

Jsington.—Repairs to the boundary wall at Manchester Mansions, for B.C.—R. W. Rickett (Fencing), Ltd., Hoddesdon, Herts., £999 (recommended).

Portsmouth.—Provision of fencing at

Portsmouth.—Provision of fencing at Braemar Avenue Allotment Gardens. College Park, Horsea Lane Allotments. Southsea Common Tennis Courts, and chain link fencing at Pembroke Gardens for City Council—G. A. Day, Ltd., Portsmouth, £1,546 (recommended).

Whiston, Lancs.—Provision of railings to park for R.D.C. A. J. Bebbington, engineer and surveyor—Bayliss, Jones and Bayliss, Ltd, Wolverhampton, and M. and S. Builders, Liverpool.

#### GAS AND WATER SUPPLY

GAS AND WATER SUPPLY

Leatherhead, Surrey.—Construction of a raw water pumphouse and water treatment plant for the East Surrey Water Co.—Holland & Hannen and Cubitts (Great Britain), Ltd., 1 Queen Anne's Gate, London, S.W.1, £253,000. Riches and Blythin, 16 Northumberland Avenue, London, W.C.2, are the architects, G. M. Swales is the company engineer and L. G. Mouchel and Partners, Southbank House, Black Prince Road, London, S.E.1, are the consulting engineers for the reinforced concrete.

North Walsham, Norfolk.—Extension of water mains—Cromer Road and housing site off Bacton Road for U.D.C. L. J. Foster, engineer and surveyor—W. A. G. Johnson, Holly Cottage, Hickling, Norwich, £710. Work to commence October.

#### HOUSING SCHEMES

Abingdon, Berks.—Twelve aged pers flats at Steventon, for R.D.C.—Frede J. Minns and Co., Ltd., Botley, Oxford.

Alton, Hants. — Sixteen flats, 60 houses and 16 bungalows for U.D.C. — Gregory Housing, Ltd., 21 Farncombe Road, Worthing.

ing, Ltd., 21 Farncombe Road, Worthing.

Birmingham.—Twenty-nine dwellings and 23 garages at Willaston Road, Elms Estate, for City Council—Morris and Jacombs. Ltd., 71 Hob Moor Road, Small Heath, Birmingham, 10, £66,345.

Didcot, Berks.—Thirty-one houses with roads for the National Institute for Research in Nuclear Science—Frederick J. Minns and Co., Ltd., Botley, Oxford.

Easington, Dur.—Erection of (a) 19 houses at High Hesleden and (b) four bungalows at Murton for R.D.C. R. R. Lumsden. surveyor—(a) W. M. Glass, Ltd., Ryhope, Sunderland, £21,081, and (b) O. P. Docherty and Son, Hylton Road, Sunderland, £6,968.

Maesteg. Glam. — Forty-four houses for

Maesteg, Glam. — Forty-four houses for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing.

Newbury, Berks.—Thirty-six flats, 89 houses and six bungalows for U.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worth-

Pembroke.—Eight pairs of three-bedroomed houses on sites at Military Road and Bush Camp, Pembroke Dock, for B.C. W. B. Kavanagh, borough engineer and surveyor—

Frank Brown and Co., Victoria House, Victoria Road, Pembroke Dock, £42,964 (accepted); Roger Gibson and Co., Ltd., £43,524; Geo. Argent and Co., Ltd., £44,662; Hussey, Egan and Pickmere, Ltd., £54,241. (Work commencing October.)

Portsmouth. — Following for City Council: 30 flats at Northern Parade—Howe and Bishop, Ltd., Crown Buildings, Clarendon Street, Portsmouth, £67,884 (recommended); Auriol (Builders), Ltd., £69,680; Henry Jones and Son (Portsmouth), Ltd., £69,810; H. E. Collins, Ltd., £70,975.

Completion of 36 flats and 24 garages at Furze Lane—Direct Labour; completion of 36 flats and 14 garages at Southampton Road—Basford and Sons (Contractors), Ltd., Northwoods, Fareham Road, Gosport (recommended).

Swinton and Pendlebury, Lancs.—Thirty

(recommended).

Swinton and Pendlebury, Lancs.—Thirty aged persons' flatlets, communal rooms and warden's flat above at Richmond Street for B.C.—G, and J. Seddon, Ltd., Little Hulton, Walkden, Manchester, £45,930

rutton, walkden, manchester, 243,330 (recommended).

Wallingford, Berks.—Thirty houses with roads for B.C.—Frederick J. Minns and Co., Ltd., Botley, Oxford.

#### PLANT AND MECHANICAL TRANSPORT

Barnsley, Yorks.—Supply of three 15cwt. Brentford dumpers for the sewage works, for B.C.—H. B. Raylor and Co., Ltd., Rother-ham, £1,150 (recommended).

Portsmouth.—Supply of one Coles Aeneas mobile crane for City Council—Steels Engineering Products, Ltd., Crown Works, Sunderland, Dur. (recommended).

#### RAILWAY ENGINEERING

British Railways.—Following contracts placed: Eastern Region:

astern Region:
Supply, delivery and erection of an electrical installation at March (Whitemore) up yard sidings—Connaught Contractors (Send), Ltd., Portsmouth (A.3) Road, Send, Woking, Surrey.
Supply and delivery of steelwork for reconstruction of portion of superstructure of underline bridge 666 carrying up and down main lines over Metropolitan Water Board's aqueduct between Lea Bridge and Tottenham—The Butterley Co., Ltd., Butterley, Derbys.



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Construction of a new signal box at Seymour Junction, Staveley — A. Bradbury and Son (Contractors), Ltd., 334 Cemetery Road, Sheffield, 11.

Supply, delivery and erection of e.h.v. switchgear for Sheffield (Tinsley) Marshalling Yard—Crompton Parkinson, Ltd., Chelmsford, Essex.

Construction of a new signal box at Horns Bridge, Chesterfield—A. Bradbury and Son. (Contractors), Ltd., 334 Cemetery Road, Sheffield, 11.

Installation of 25-kV switchgear in track sectioning cabins at Witham and Hill House—Fuller Electric, Ltd., Fulbourne Road, London, E.17.

Minor modifications at Colchester feeder station, involving the linking up of switchgear with remaining equipment—Fuller Electric, Ltd., Fulbourne Road, London, E.17.

Demolition of existing bridge over Shep-

E.17.

Demolition of existing bridge over Shepcote Lane and construction of new bridge in its place, also construction of single-span bridge over an accommodation road and execution of earthworks at Tinsley, Sheffeld—Wellerman Bros., Ltd., Dun Street, Sheffield, 3.

field—Wellerman Bros., Ltd., Dun Street, Sheffield, 3.
Construction of control cabin, demolition and recovery of certain redundant assets and alterations to structures at Ipswich Motive Power Depot—R. F. Herron. Ltd., Station Parade, Ickenham Road, Ruislip, Middx.
Dismantling and removal of three existing transporter cranes, supply and erection of two 30cwt. electric transporter cranes at Bishopsgate Goods Depot—Paterson Hughes Engineering Co., Ltd., Wyndford Works, Lochburn Road, Maryhill, Glasgow, N.W.
Provision of superstructure to diesel stores building at Doncaster Locomotive Works—T.G. Construction Co., Ltd., Bowesfield Lane, Stockton-on-Tees, Co. Durham.
North-Eastern Region:
Provision of fabricated steelwork for bridge 105, carrying the road over the railway at Bradley on the Leeds-Huddersfield line—Dorman Long and Co., Ltd., Middlesbrough.
Provision of steel shelving for the stor-

line—Dorman Long and Co., Ltd., Middlesbrough.
Provision of steel shelving for the storage of diesel components at South Gosforth Car Sheds—Constructors, Ltd., Leeds.
Raising the superstructure, abutments and bearings, also approach roadways, retaining and boundary walls of bridges 199 and 201 between Mirfield and Thornhill

on the Manchester-Normanton line, and repair of the damaged Corporation sewer near Morley on the Leeds-Huddersfield line—Ruddock and Meighan, Ltd., Barnsley. Cleaning and painting of Willington Viaduct, also bridges on the Riverside and Ponteland branches—J. H. Eblett, Ltd., Newcastle.

Erection of a sub-station, boiler-house, coke and coal bunkers at Darlington Bank Top Station and construction of an annexe at Darlington North Road Locomotive Works for inspecting locomotives—R. Blackett and Son, Ltd., Darlington.

Provision of track drainage at Hemsworth on the Leeds-Doncaster line—F. and J. Watkinson, Bradford.

Installation of central heating, water and gas in the Pre-apprentice School at York Carriage and Wagon Works—W. E. Hargreaves, York.

Installation of extra high voltage switch gear in the control tower sub-station at Lamesley New Marshalling Yard—Brush Electrical Engineering Co., Loughborough. Earthworks in main line embankment at Healey Mills and repairs to the coaling plant at York Motive Power Depot—Mitchell Construction Co., Ltd., Peterborough.

plant at York Motive Power DepotMitchell Construction Co., Ltd., Peterborough.

Southern Region:

Extension of electrification, Chislet
Colliery: earthworks and drainage—J. W.
Ellingham, Ltd., Maidstone, Kent.

London (Eastern) District: resurfacing
and surface dressing of footpaths and
platforms—Durable Asphalte Co., Ltd.,
London, N.I.

Exmouth Junction Metive Power Depot:
new water tower—Carter-Horseley (Engineers), Ltd., Crawley, Sussex.

Wimbledon Park: renovations to carriage
cleaning sheds—Alfred Bagnall and Sons,
Ltd., Teddington, Middx.

Sittingbourne: station renovations—C. and
T. Painters, Ltd., London, N.W.10.

Wokingham: part reconstruction of
Robin Hood Lane Bridge—Aubrey Watson,
Ltd., Henley-on-Thames, Oxon,
Exmouth Junction: new brake shop—
Sidney Pratt (Builders), Ltd., Exeter.

Charing Cross: resurfacing of Hungerford
Footbridge—Durable Asphalte Co., Ltd.,
London, N.I.

Lancing Carriage and Wagon Works: im-

Lancing Carriage and Wagon Works: im-proved ventilation to carriage and paint shops—Brooks Ventilation Units, Ltd., Croydon, Surrey.

Stewarts Lane Depot: demolition of coaling plant—The Demolition and Construction Co., Ltd., London, S.W.I.
Hither Green: repairs to Manor Lane Bridge—The Demolition and Construction Cc., Ltd., London, S.W.I.

#### RIVER AND FLOOD PREVENTION

Newport, Mon.—Flood prevention works at Bettws for B.C.—I. S. Dymond, 30 High Street, Newport, £138,949 (recommended).

#### ROADS, BRIDGES AND SITE WORKS

Barnsley, Yorks.—Surfacing various roads within the borough for B.C.—John Hinchcliff and Son, Ltd., Pontefract, £2,485 (recommended).

Doncaster, Yorks.— Making-up of the following private streets, contract 57, for B.C.: St. Augustine's Road, St. George's Road, Prince's Road, Bridge Road, The Oval, The Avenue, Moorland Grove (part of)—McCann, Fleming and Moran, Ltd., 197 Handsworth Road, Sheffield, 13, £25,131. 625 131

£25,131.

Dundee.— Construction of a bridge over Dighty Water for City Council—James Young (Contractors), Ltd., 2236 London Road, Carmyle, Glasgow, E.2, £19,526.

Huyton-with-Roby, Lancs.—Construction of a railway bridge on Huyton Hey Road for U.D.C.—Leonard Fairclough, Ltd., Chapel Street, Adlington, £76,356. Work commenced.

Blington.—Following for B.C.: Construction of

Street, Adlington, £76,356. Work commenced.

Islington.—Following for B.C.: Construction of a deep drain, a car parking area, and the seeding of an area adjacent to this car park at the Cemetery at Trent Park.—St. Mary's (Contractors), Ltd., 273 Sussex Way, London, N.19, £5,687; reconstruction of kerbs and the repaving of footpaths with artificial stone paving in various roads—Fitzpatrick and Son (Contractors), Ltd., 455 Old Ford Road, London, E.3, £46,839; carpeting with cold asphalt the carriageways in Dartmouth Park Hill (Junction Road to Ingestre Road), Caledonian Road (by Wynford Road), Hercules Street (Holloway Road to Hercules Place) and Junction Road (Fulbrook Road and Fortess Road)—W. F. Rees, Ltd., 54 Victoria Street, London, S.W.I, £2,138 (recommended).

Llandrindod Wells, Radnors—Making-up of Dyffryn Road and Ouarry Lane for U.D.C. R. J. Morris, engineer—Taylor and Co., Barton Road, Hereford, £3,215 and £2,246 respectively (work commenced).

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Newhaven, Sussex.—Surface dressing of approximately 8,911 sq. yd. of carriageways within the urban district, 1961, for U.D.C. A. E. Motyer, engineer and surveyor—Johnson Bros. (Aylesford), Ltd., Vale Road, Tonbridge, Kent, £631.

Newport, Mon. — Improvement at Cardiff Road for B.C.—Direct Labour (recom-Road for mended).

mended).

Stafford.—South Walls widening for B.C., comprising the demolition of buildings and the widening of 195 lin, yd. of carriageway from its existing width of 12ft, to a new width of 22ft, together with the provision of footpaths, surface water drainage, mass concrete retaining walls, etc. T. H. Higson, borough engineer and surveyor—Roy Beech (Contractors), Ltd., North Street, Stoke-on-Trent, £5,965. Work to commence October, windsor. Berks.—Drainage, dense tar sur-

Trent, \$5,965. Work to commence October, Windsor, Berks.—Drainage, dense tar surfacing and ancillary works to the western section (approximately 4,000 sq. yd.) of Bachelors' Acre for B.C. G. S. Baker, engineer and surveyor—W. and J. Glossop, Ltd., 123 East Hill, London, S.W.18, £7,301. Work commencing this month

# SEWERAGE, SEWAGE AND REFUSE DISPOSAL

Aylesbury, Bucks.—Construction of the eastern area drainage scheme for B.C.—Frain Bros. (London), Ltd., Cable House, Lyonsdown Road, New Barnet, Herts., £31,832 (recommended, subject to Ministry approval).

approval).

Barasley, Yorks.—Supply of a portable band elevator and a portable band conveyor for sludge handling at the sewage works for B.C.—A, L. Marshall (Carlton), Ltd., Cemetery Road, Carlton, Notts., £796 (recommended).

Birmingham—Supply of All.

cemetery Road, Carlton, Notts., £796 (recommended).

Birmingham.—Supply of 48in. diameter bolted gland spun-iron pipes and fittings for the Yardley and Tyburn main sewer for the Birmingham Tame and Rea District Drainage Board.—Stanton and Staveley Sales, Ltd., P.O. Box 72, near Nottingham. Estimated cost £176,000.

Cromarty.—Construction of a new outfall sewer in 9in. diameter cast-iron pipes to low water mark, together with new manholes and the laying of short lengths of fireclay pipes for B.C. Blyth and Blyth. engineers, 28 Church Street, Inverness—Pat Munro (Alness), Ltd., £1,744 (accepted); Duncan Logan (Builders), Ltd., £2,087; I. Banter and Sons, £2,597.

Hull.—Road and sewer works at Bricknell Avenue estate extension (ref. 13c) for City Council—Sangwin, Ltd., Dansom Lane, Hull.

Melton and Belvoir, Leics.—Construction of the Harby and Heren.

Lane, Hull.

Helton and Belvoir, Leics.—Construction of the Harby and Hose sewerage and sewage disposal scheme for R.D.C. comprising the laying of 9,400yd. of sewers and pumping mains of 9in., 6in. and 4in. diameter, together with the construction of two pumping stations and a sewage disposal works, at Harby, seven miles north of Melton Mowbray. Pick, Everard, Keay and Gimson, consulting engineers 6 Millstone Lane, Leicester—W. J. Roberts (Bottesford). Ltd., Bottesford, Notts., £95,626 (subject to Ministry approval). Melton

Montgomery.—Works of sewerage and sewage for B.C. A. H. S. Waters and Partners, consulting engineers, 25 Temple Row, Birmingham, 2—Conduit Construction Co., Ltd., 3 Greenheys Lane, Manchester, 15, £43,338 (recommended).

Newport, Mon.—Construction of the Shaftesbury Park pumping station and ancilliary works for B.C.—Building and Construction Co., Ltd., 68 Park Place, Cardiff, £134,398 (recommended).

Scarborough, Yorks.—Following for B.C.: Supply of 81in. diameter concrete pipes for the reconstruction of southern outfall sewer, stage III—Stanton and Staveley Sales, Ltd., near Nottingham.

Construction of a new 24in. diameter sewer in Holbeck Hill—Direct Labour (recommended). Estimated cost £3,532.

Scaford, Sussex.—Construction of a reinforced concrete collecting chamber, 40yd, of 66in. diameter concrete tube sewer, and ancillary works, for U.D.C.—Demolition and Construction Co., Ltd., 3 St. James's Square, London, S.W.I, £20,735. Work to commence soon.

Soon.

Skipton, Yorks.—Laying of a 6in. and 9in. surface water sewer at Bark Lane, for R.D.C.—W. V. Patrick (Builders), Ltd., Station Road, Grassington, Yorks., £1,048. Work commenced.

#### STREET LIGHTING

Brownhills, Staffs.—Supply and erection of 33 steel columns 30ft, high complete with 200-watt sodium lanterns and gear at Watling Street, A.5, for U.D.C.—Abacus Muncipal, Ltd., Sutton-in-Ashfield, Notts.

Dorchester.—Street lighting, The Grove, erection and painting of steel columns for B.C.—Abacus Municipal, Ltd., Sutton-in-Ashfield, Notts.

in-Ashfield, Notts.

Holywood, Down.—Provision and erection of following for U.D.C.: (1) 43 fluorescent street lighting lanterns (2 x 40 watt); (2) 50 lin. yd. approximately x 2ft. 6in. high mild steel railings—(1) A.E.I. Lamp and Lighting Co., Ltd., 18 Adelaide Street, Belfast, 2, £825; (2) Bridge End Ironworks, 64 Tandragee Road, Portadown, £209.

#### GOVERNMENT CONTRACTS

Admiralty.—Particulars of contracts over £4,000 in value placed by Navy Works Department:
Fife: re-decking—J. R. and A. Adam, Ltd., Lochgelly.
Cornwall: modernisation of latrines—Dudley Coles, Ltd., Plymouth.
Kent: construction of piled foundations—Concrete Piling, Ltd., London, S.W.I.
Air Ministry.—Contracts to the value of £4,000 or over for the week ended Sept. 8:
Building work: Burderop, Wilts.—F. Rendell and Sons, Ltd., Devizes, Wilts.; Edzell, Angus—R. Pert and Sons, Ltd., Montrose, Angus; Wittering — Bosworth, Wakeford and Stepnell, Ltd., Rugby, War.
Surfacing work (existing paved areas):
West Raynham, Norfolk—The Limmer and Trinidad Lake Asphalt Co., Ltd., Vauxhall Bridge Road, London, S.W.I.

Painting work: Cranwell and Digby, Lincs.—C. J. Else and Co., Ltd., Lincoln. Artificers' work: Quedgeley, Glos.—Wm. T. Nicholls, Ltd., Gloucester. Preparation and maintenance of land: Honington, Wattisham, Bentwaters (Suffolk), etc. — Turfsoil, Ltd., Greenwich, London, S.E.10; Woodbridge, Bawdsey (Suffolk), etc.—Clarke Demolition and Construction Co., Ltd., Waldringfield, Woodbridge, Suffolk.
Electrical installation work: Fylingdales Moor, Yorks.—F. H. Wheeler and Co., Ltd., Newcastle upon Tyne.
Electrical installation work (internal wiring): Carlisle—Geo. Bowman, Ltd., Carlisle.

wiring): Carlisle.

Carlisle.

Ministry of Works.—Contracts placed for week ended Sept. 2: Cheshire: Rock Ferry: erection of telephone exchange—William Thornton and Sons, Ltd., 38 Wellington Road, Liverpool, 8.

Hampshire: National Gas Turbine Establishment, Pyestock—cooling towers—Film Cooling Towers (1925), Ltd., Chancery House, Parkshot, Richmond,

Chancery Flouse,
Surrey.

Hertfordshire: Public Records Office,
Ashridge—conversion to oil firing—Fred.
G. Alden, Ltd., 6-7 New Road, Oxford.
Lanarkshire: Larkhall—erection of a
Government office building—Scott and
Co. (Builders), Ltd., 25 Delburn Street,
Motherwell. Motherwell.

Motherwell.

Lancashire: Head Post Office, Wallgate, Wigan — alterations and adaptations—Thomas Collier and Sons, Ltd., Brown Street Works, Leigh.

London: Government Building, Bromyard Avenue, Acton, in: A-external and internal decorations—South London Decorators, Ltd., Wandle Way, Willow Lane, Mitcham, Surrey.

Surrey: Veterinary Research Laboratory, Weybridge—erection of egg incubator—E. Clarke and Sons (Addlestone), Ltd., Addlestone, Weybridge.

Worcestershire: Radar Research Establishment, Malvern—erection of computor building—Espley and Co., Ltd., 62 High Street, Evesham.

Evesham.

Yorkshire: Post Office, 36 Park Row, Leeds—erection of 6th floor—J. Pullan and Sons, Ltd., Manor Works, Beeston.

Sons, Ltd., Manor Works, Beeston.

War Department.—Contracts placed for week ended Sept. 1:

Berkshire (Didcot): electrical—Electrical Installations, Ltd., London, S.W.1; (Windsor): building — Kirk and Kirk, London, S.W.15.

Cheshire (Radway Green): heating—Arthur Heaton and Co., Ltd., Liversedge. Hampshire (Bordon): building—J. M. Hill and Sons, Ltd., Wembley.

Inverness - shire: (Grantown - on - Spey): heating and hot water—Clyde Fuel Systems, Ltd., Glasgow.

Invertiess sand hot water—Clyde Fuel Systems, Ltd., Glasgow.
Oxfordshire (Bampton): concrete bases—Costelloe's Plant Hire Co., Ltd., Cheltenham: dismantling and re-erecting aerials—Pirelli General Cable Works, Ltd., South-

ampton.
Scmerset (Watchet): installation of oil heaters—E. R. Carter, Yeovil.
Warwickshrie (Long Marston): painting—R. B. Warner, Shrewsbury.





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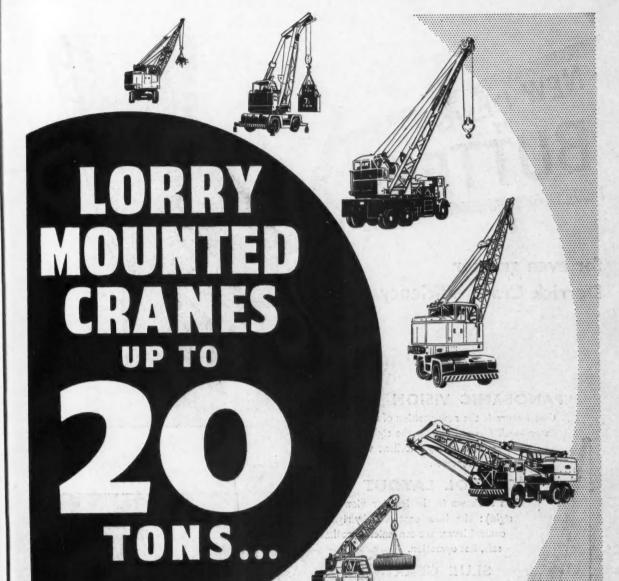
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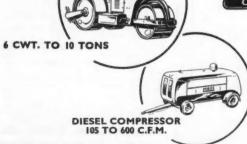
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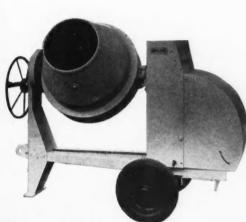
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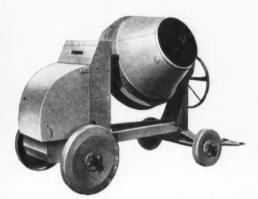
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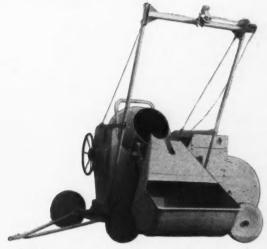
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## Just look at these features The MONO-RAIL TRANSPORTER

NEEDS NO DRIVER OR OPERATOR

MAS LOW OPERATING COSTS

IS EASILY AND RAPIDLY SET UP OR REPOSITIONED

IS EASILY DISCHARGED

IS IDEAL FOR BAD GROUND

DOESN'T CHURN UP MUDDY GROUND

REQUIRES NO FOUNDATIONS

CLIMBS UP TO 1:9 GRADIENTS FULLY LOADED

TRAVELS 100 YARDS PER MINUTE

IS SUITABLE FOR ALL CONCRETE PLACING



 $\dots$  and, what's more, with the MONO-RAIL BRIDGE in the system, an increased concrete output can be placed almost anywhere without moving rails or interfering with reinforcements.

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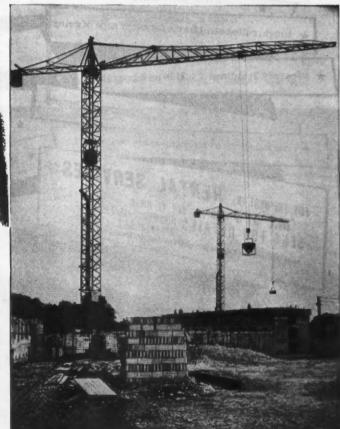
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Now available for

TYPE G15 HV-A

### COCK-WEITZ

**OWER CRANES** 



TYPE G 15 HV-A Available as a travelling, fixed-base, expend-able-base, or climbing crane. Positive gear-drives throughout. Choice of 3 jib lengths:—

Safe working load	Jib lengths	
15 cwt.	65 ft. 7 in.	
20 cwt.	55 ft. 9 in.	
Also available with a Jib	length of 80ft.	
Maximum, 40 cwt. at 24	fe. 7 in. limit.	
Maximum height for mobile working:	95 ft. 2 in.	
Height, with 10 tower sections, anchored:	147 fc. 7 in.	

30-9 tons

Working weight, 95 ft. high, with ballast:

Ask for Publication 1725.



Babcock and Wilcox Ltd. are now in full production of completely British-built saddle-jib tower cranes, complying with BSS 2799, with all-British electrics and other components, backed by 50 years Babcock crane-building experience and by an effective erection, maintenance and spare parts service.

Of these British-built cranes, the versatile Type G15 HV-A is now available for rapid delivery from stock.

There is a wide range of BABCOCK-WEITZ tower cranes-telescopic, for fixed or travelling duties, or in climbing versions, with a full choice of capacities and jib lengths to meet every site requirement.

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\* air cooled engine for all-climates operation \* no radiator, boiling or freezing problems  $\star$  split rims on all wheels simplifies tyre changing tough, rolled-steel frame for every type of going ★ hand-throttle control prevents \* wide skip for easy loading surge over rough going uses only  $2\frac{1}{2}$  gallons of fuel in an 8-hour shift ★ 3½ cu. yd. capacity, heaped \* easy access to all driving controls \* six forward and two reverse gear ratios ★ two independent mechanical brake systems speed range 0-20 m.p.h. FOR THE BEST IN RENTAL SERVICES MR 375 DUMPERS CAN BE HIRED
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Shawnee Poole

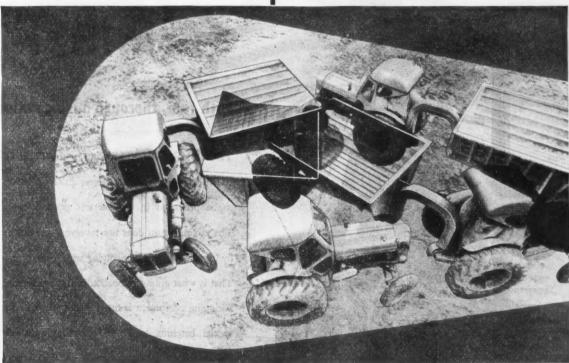
World's *shortest* turning circle cuts cycle time...

From a study of this multi-exposure illustration, you see how the Shawnee Poole makes a 'U' turn in 23' 6".

... ability to make a 'U' turn in approximately 23 ft. enables users of the Shawnee Poole System to increase production and eliminate expensive site preparation—with the System that saves up to 50% in total operating costs.

Ask for a Job Survey on your site.

The Shawnee Poole System is manufactured under British and Foreign patents granted and pending.



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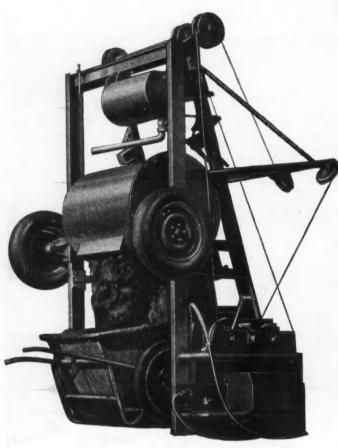
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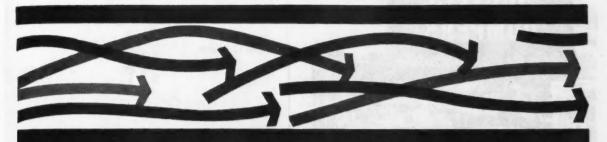
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with fast, thorough mixing action...

THOROUGHNESS of mixing by the Wakefield Batch Mixer enables the highest quality concrete to be produced in the shortest possible time. The mixing drum does not revolve — mixing is by ingenious paddles, revolving within the drum. That is what gives the phenomenal speed of mix. Weighing equipment is fitted to the mixer, and a special batching 'wall' and dividing walls are available for feeding materials to the feederweigher. Labour needs are reduced to a minimum.

very rapid working cycle

#### Wednesbury copper tube



#### has a watertight reputation!



All WEDNESBURY copper tube is solid drawn to the highest standards. Tubes to B.S. 659 and B.S. 1386 are free from carbon and oxide films. The British Standards Institute recognise this exceptional quality with their "Kite Mark" seal of approval. Be sure the installations on your plans hold water. Specify WEDNESBURY copper tube for its watertight reputation-always! WEDNESBURY stock a wide range of sizes. And provide a prompt, efficient delivery service to all parts of the country.

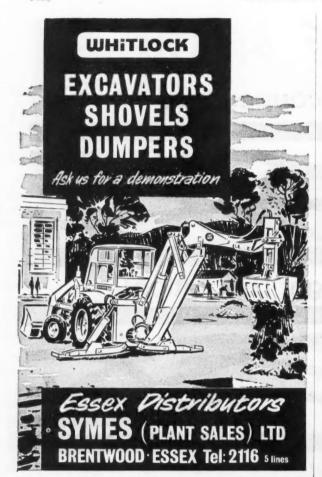
WEDNESBURY

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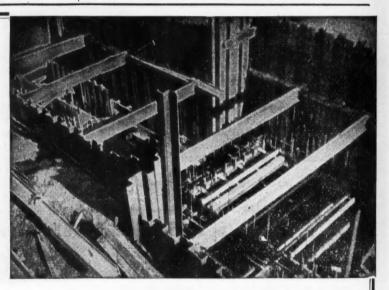
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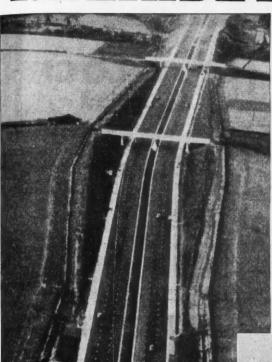
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ASK the equipment makers. Check with the contractors. Talk with the men on the job. All agree that punch, thrust or lift, the ever-reliable Petter diesel keeps plant economically in action and the work on schedule.

#### SPECIALIST-BUILT

These specialist-built units are designed intrinsically to drive builders' and contractors' equipment and all are performance-tested before delivery. On site, they save muscles and man-hours. Mechanically, they are compact and dependable, need only the minimum supervision even in the worst of working conditions and are simple to operate and maintain.

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In fact, universally accepted, internationally proved... and backed by a world-wide spares and maintenance service... PETTER diesels are welcomed everywhere as an ideal source of plentiful low-cost power. Whatever your power problem is, and wherever it is, Petter can handle it.



PETTER AT THE SPENCER STEEL WORKS—On this £120,000,000 development (Richard Thomas & Baldzins) more than 200 pieces of plant are Petter powered! MAIN BULLDING AND CIVIL ENGINEERING CONTRACTORS: Sir Robert McAlpine (South Wales) Limited.



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PETTER ON THE M1 -

On this £24,000,000 project (74 miles of dual carriageway) over 400 items of contractors' equipment were powered by PETTER diesel engines.



PETTER FOR THE BUILDER—Where lighter equipment is used, Petter still provides the power—on mixers, dumpers and pumps on this 140-house site for the Bracknell Development Corporation. (CONTRACTORS: George Wimpey and Co. Limited)



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A member of the Hawker Siddeley Group



PETTER

air cooled from 1½ to 108 bhp; water cooled from 3 to 48 bhp.

-it goes much better powered by

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#### Man with an easy job

He's lucky this week...he's only chilled and stiff.

Last month was tougher; then he crawled fifty yards
up a twenty-four-inch sewer to clear a valve...
forty feet below the surface. He doesn't scare easily.

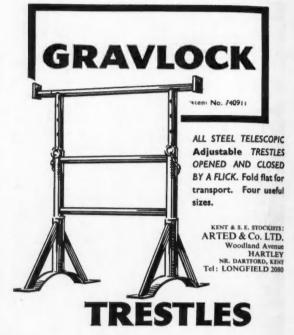
He's exact forwards of Universal Divers. He's

He's a crack frogman of Universal Divers. He's a fully-experienced oxy-arc welder and cutter. He's also been an underwater stonemason. He can carry out a submarine survey in nil visibility. He's skilled in using explosives.

He's one of a team of Universal divers and frogmen who can report anywhere in the British Isles at a few hours' notice. Next time you need a diver in a hurry — send for Universal.

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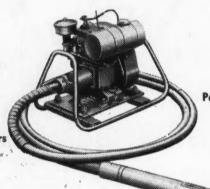
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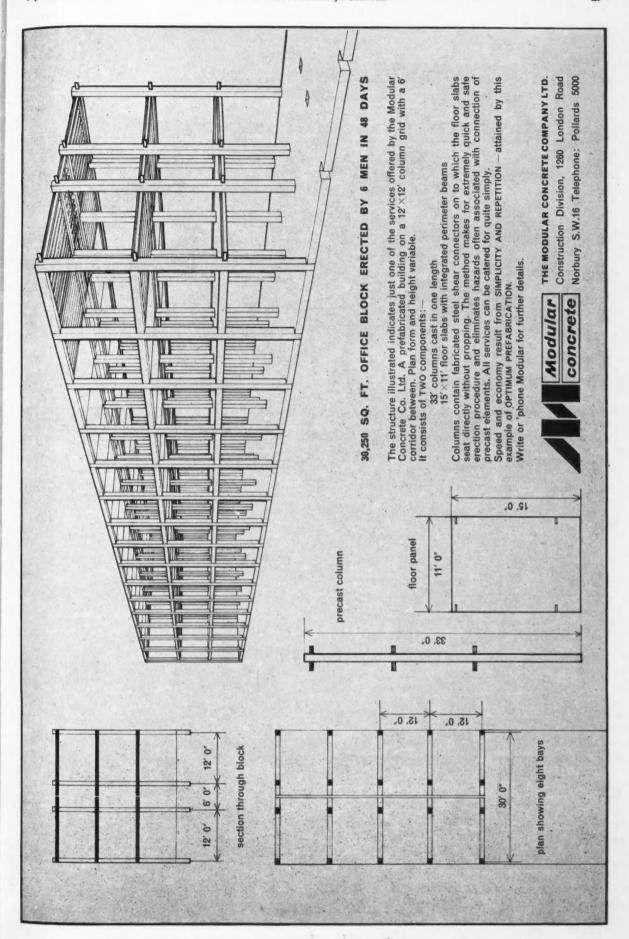
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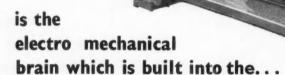
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READY MIXED CONCRETE PLANT CIVIL ENGINEERING PLANT



SIMDINE CONTINUOUS BATCHING MIXING

Fully automatic Batching & Mixing Plant designed to deliver a continuous output of mixed concrete into truckmixers or agitators OF ANY SIZF, at the rate of up to 3 CU. YDS per minute.

- \* NO WEIGH LEVERS TO PULL!
- \* NO WEIGH BUTTONS TO PUSH!
- \* TOTAL ELIMINATION OF HUMAN ELEMENT IN WEIGHING



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No ordinary scraper/dozer combination this, it's the ideal unit for the smaller contractor and builder, with staying power for big jobs, manoeuvrability for small ones and round-the-clock availability. The T.M.2. open bowl scraper takes full advantage of the Track-Marshall's 55 b.h.p. and 14,000lb drawbar pull; its centre of gravity is directly over the cutting edge for faster digging, yet low enough to provide maximum scraper stability however rough the going. The Marshall Angledozer too, is built for peak performance and quick, simple adjustment but that's only to be expected, for the complete team — crawler, scraper and dozer — have been designed to work together from the word go!

the team that's

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WEIGHT MADE TO WORK

The scraper's weight is concentrated over cutting blade: loads are dug faster. Heaped capacity, 5.62 cubic yards.



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C.C.U. controls are handy to driver: operation is positive and sensitive with no stiffness or backlash

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\* available: october

Any load

any site conditions

it wins through!

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961



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An electrical safety circuit keeps this compressor in the best of health. Soaring radiator temperature or falling engine oil pressure are signs of engine trouble which could become expensive. Rising temperature of discharge air points to a fault in the cooling system. Each of these symptoms will activate the safety circuit and stop the engine automatically. A broken lead or contact will do the same.

This way your Joy-Sullivan compressor gets attention before the point of actual breakdown. Saves time, temper and money . . . and it makes sense. Read all about it in Publications AD4 and AD5.

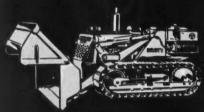
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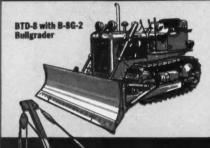
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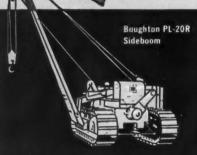
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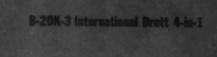
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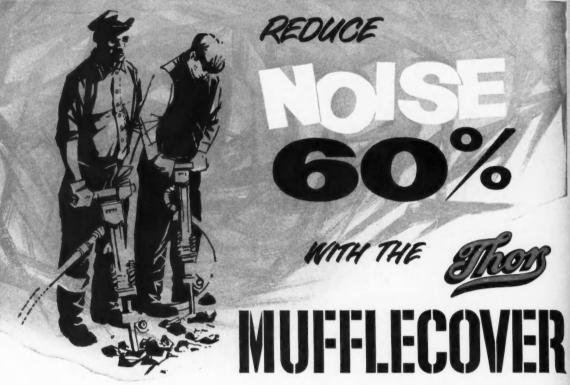
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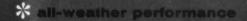
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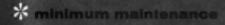
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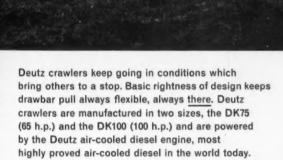
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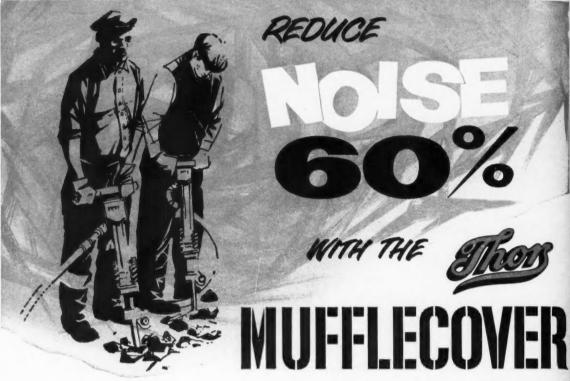
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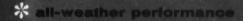
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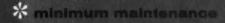
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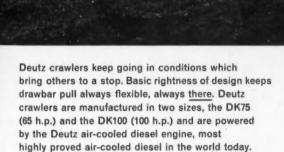
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\* low fuel consumption



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## Why do I vote for INTERNATIONAL?

Because an International BTD20 Bullgrader has completed 7000 hours on this site without track overhaul — not even pins and bushings. It has given outstanding performance with real economy — fuel used is less than  $3\frac{1}{2}$  gallons per hour. 17 tons of really first class tractor — I couldn't wish for a better outfit."





- Rolls Royce, Direct Start, Diesel Engine, developing 124 BMP at 1550 RPM for long life and fuel economy.
- Adequate weight (38,000 lbs) to utilise ample power (and reserve torque) available.
- 9 Entirely British built and from British components.
- First class workmanship at down to earth prices.
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BIGGEST NUCLEAR POWER STATION IN
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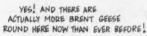
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LOOK, CRANES EVERYWHERE, WORKING. DRINKING OIL, TWO MILLION GALLONS ALREADY – MORE COMING!



YOU MEAN YOUR CRANES LIKE OIL?

3





LET'S TURN OUR BANNER ROUND, SHALL WE?



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A.P.L. brands to Bradwell when it is working. (2) At Bradwell, Shell-Mex & B.P. have been and are suppliers of fuel to all contractors, and of lubricants to all but one contractor, employed on the site.



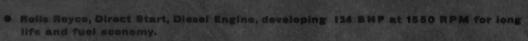




#### Mr. Rutherford, Plant Manager for James Miller & Partners Ltd., Radar Open Cast Coal Site, Morpeth, Northumberland.

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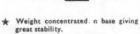
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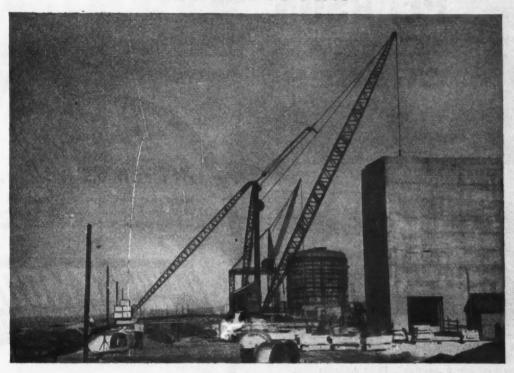
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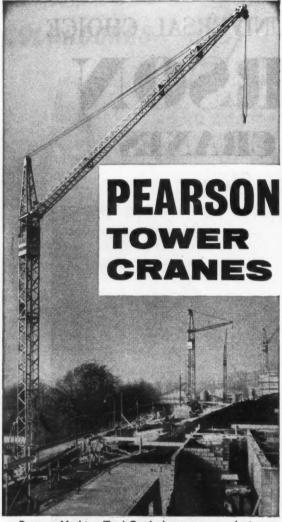
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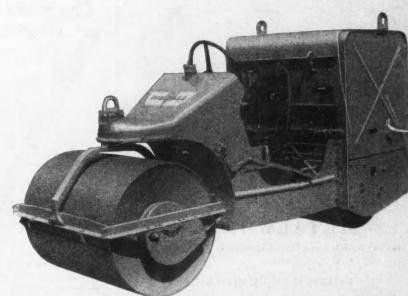
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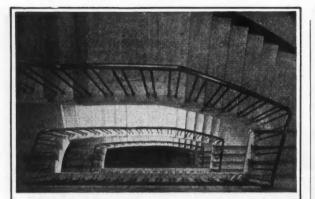
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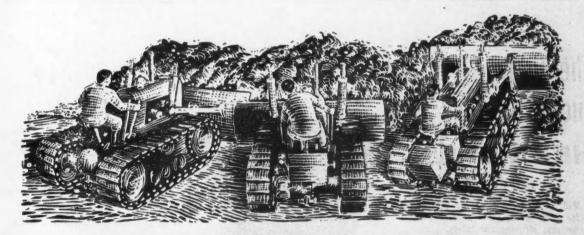




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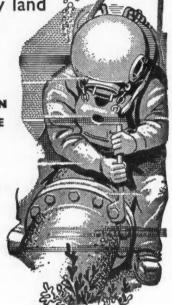
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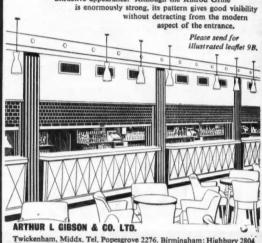
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